The Relationship Between Cognitive Emotion Regulation and Clinical Symptoms: A Gendered Analysis

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THE RELATIONSHIP BETWEEN COGNITIVE EMOTION REGULATION AND CLINICAL SYMPTOMS: A GENDERED ANALYSIS

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Abstract

Epidemiological studies consistently identify markedly higher rates of depression and anxiety in women than in men. Susan Nolen-Hoeksema's (1991) response styles theory posits that women's higher use of rumination contributes to these differences in rates of depression. The purpose of this dissertation was to extend this theory with the inclusion of conformity to gender role norms as a meaningful predictor of women's and men's tendencies to use of a variety of cognitive emotion regulation strategies, including rumination. The current study also sought to examine relationships among cognitive emotion regulation strategies and both depression and anxiety. Adult women and men (N = 754) completed an online survey including measures of conformity to masculine and feminine gender role norms, 10 cognitive emotion regulation strategies (rumination, distraction, self-blame, acceptance, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame), depression, and anxiety. Results of regression analyses indicated that use of particular cognitive emotion regulation strategies predicted levels of depression and anxiety. Specifically, self-blame, rumination, and distraction were associated with higher levels of both depression and anxiety. Other-blame was also associated with higher levels of anxiety. In contrast, acceptance and refocusing on planning were associated with lower anxiety scores.

Women were more likely, by a small margin, to endorse use of both rumination and distraction, however, significant sex differences in reported levels of depression and anxiety were not found. Further, conformity to gender role norms did not explain the sex differences that were found in the use of rumination and distraction. Finally, analysis of a structural equation model, designed to examine an extended version of response styles theory, supported the regression findings and provided additional information about the relationships among conformity to gender role norms, cognitive emotion regulation strategies, and symptoms of depression. Implications for clinical practice and suggestions for future research are discussed, including the importance of exploring alternative meaningful components of within-group variability for women and men.

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To Grandma, Grandpa, Mom, Dad, Brendan, and Sam. Thank you for believing in me and for never letting me forget what I have accomplished.

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Chapter 1: Introduction

The rising prevalence of mental illness in the United States has become a public health crisis, with depression and anxiety representing the most common and debilitating psychiatric disorders. Research conducted by the National Institute of Mental Health has found that 14.8 million adults struggle with major depression and that it is the leading cause of disability for Americans between the ages of 15 and 44 (NIMH, 2011). Another 3.3 million people carry a diagnosis of dysthymic disorder, a depressive disorder slightly less severe than major depression (NIMH, 2011). In addition, it is estimated that 40 million adults in the United States have an anxiety disorder, which is often comorbid with depression (NIMH, 2011). Researchers and practitioners alike continue to strive to understand the etiologies of these illnesses in order to develop effective preventative and treatment interventions.

It has been argued that the way in which one responds to stress and negative life events may be more directly connected to mental health and psychopathology than the nature of the stressful experience itself (Garnefski & Kraaij, 2006; Suveg, Morelen, Brewer, & Thomassin, 2010). The concept of emotion regulation refers to this process, generally. More specifically, emotion regulation is defined as the way in which an individual responds to and manages the negative emotions that accompany stressful experiences or events (Garnefski, Kraaij, & Spinhoven, 2001). There are a variety of responses on which one draws, consciously or unconsciously, to manage painful emotions, including physiological, cognitive, and behavioral strategies. Multiple frameworks for clinical intervention, based on bodies of research, have been developed to

address the ways in which individuals regulate emotion. Because of the centrality of cognition in the field of applied psychology, the majority of this work has focused on cognitive strategies of emotion regulation.

Cognitive Emotion Regulation

Several models have been developed in describing cognitive emotion regulation, or the patterns of thinking that one consciously or unconsciously performs when faced with emotional experience (Garnefski et al., 2001). Popular models of cognitive emotion regulation, such as that of Susan Nolen-Hoeksema's extensive research on rumination, often focus in depth on one or two strategies, such as rumination and distraction (e.g., Nolen-Hoeksema, 1991; Nolen-Hoeksema, Morrow, Frederickson, 1993). Other models focus on breadth and examine a wider variety of strategies. For example, the most comprehensive model of cognitive emotion regulation strategies in the current literature, developed by Garnefski and colleagues (2001), outlines nine strategies of regulating emotion: Rumination, catastrophizing, self-blame, other-blame, acceptance, positive reappraisal, putting into perspective, positive refocusing, and refocus on planning. Although this model includes the most strategies, it does not include distraction or related constructs, such as avoidance or suppression. A similar model of cognitive emotion regulation, researched in a meta-analysis by Aldao, Nolen-Hoeksema, and Schweitzer (2010), includes six cognitive emotion regulation strategies: acceptance, avoidance, problem solving, reappraisal, rumination, and suppression. Although there is considerable overlap among these models, each includes distinct constructs and carries advantages and disadvantages in terms of strategies that are included and those that are excluded.

Adaptive Strategies of Cognitive Emotion Regulation. Cognitive emotion regulation strategies have been informally divided into adaptive and maladaptive strategies, based primarily upon their associations with clinical symptoms. Adaptive strategies that have been associated with positive mental health outcomes include reappraisal, problem-solving, and acceptance. The ability to employ reappraisal, a central component of cognitive-based psychotherapies, has been conceptualized as protective against the development of anxiety disorders (Gross, 1998) and identified as more common in nonclinical than in clinical samples (Garnefski et al., 2002). In addition, effective problem-solving has been associated with lower levels of both anxiety (Chang, Downey, & Salata, 2004) and depression (D'Zurilla, Chang, Nottingham, & Faccini, 1998). Acceptance, a cognitive strategy at the heart of mindfulness-based psychotherapies, has also been shown to have positive mental health outcomes, including decreased negative affect and decreased anxiety (Gratz & Roemer, 2004; Heffner, Eifert, Parker, Hernandez, & Sperry, 2003). In a meta-analysis, Aldao et al. (2010) examined the relationship between a variety of emotion regulation strategies and anxiety, depression, eating disorders, and substance abuse. Their findings supported prior research suggesting that reappraisal (e.g., Gross, 1998), problem solving (e.g., Chang et al., 2004), and acceptance (e.g., Heffner et al., 2003) can function as protective against multiple forms of psychological concerns (Aldao et al., 2010).

Maladaptive Strategies of Emotion Regulation. Some cognitive emotion regulation strategies have also been linked to poorer mental health, including the strategies of suppression and avoidance, self-blame, and catastrophizing. In a study

comparing approach and avoidant emotion regulation strategies, Barber, Bagsby, and Munz (2010) found that tendencies to cognitively suppress and/or avoid negative emotion distinguished participants with "moderate" emotional health from those with "flourishing" emotional health. Aldao et al. (2010) also found that suppression and avoidance are associated with negative mental health outcomes, including depression and anxiety. In addition, Garnefski et al. (2002) compared the relationships among cognitive emotion regulation strategies and emotional problems in matched clinical and non-clinical samples and found that self-blame and catastrophizing were the strongest variables for discerning between the samples, with clinical samples endorsing higher tendencies to use these strategies.

Research on the processes by which particular strategies may lead to psychopathology focuses on the ways in which they are ineffective. For example, studies have shown that though suppression is intended to function as an avoidant strategy by decreasing the frequency of negative thoughts, it actually has a paradoxical effect and increases these thoughts (Abramowitz, Tolin, & Street, 2001; Keough, Timpano, Riccardi, & Schmidt, 2010; Wenzlaff & Wegner, 2000). This unintended increase in negative thoughts has been shown to then lead to increases in symptoms of anxiety and depressive disorders (Gross & Thompson, 2007; Rassin & Diepstraten, 2003; Rude & McCarthy, 2003). Similarly, cognitive avoidance has been shown to be an ineffective emotion regulation strategy in that it increases the likelihood of developing depression over time (Holahan, Moos, Holahan, Brennan, & Schutte, 2005).

The strategy with the most consistent findings regarding its association with poor mental health outcomes is rumination, or maintaining one's focus on the negative event or emotion. Rumination has been linked to higher levels of depression (Flett, Madorsky, Hewitt, & Heisel, 2002; Nolen-Hoeksema, Parker, & Larson, 1994; Spasojević & Alloy, 2001) and to increased duration of episodes of depression (Nolen-Hoeksema, Morrow, & Frederickson, 1993). Studies have also linked ruminative tendencies with binge drinking and alcohol abuse (Nolen-Hoeksema & Harrell, 2002) and binge eating behavior (Nolen-Hoeksema, Stice, Wade, & Bohon, 2007). Meta-analytic research has also found that rumination (e.g., Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) is the cognitive emotion regulation strategy that has been most consistently identified as a risk factor for psychopathology (Aldao et al., 2010).

Considering the research that links rumination and depression, it is not surprising that research has also shown that participants with major depression were more likely than non-depressed participants to endorse ruminative emotion regulation strategies (Lau, Christensen, Hawley, Gemar, & Segal, 2007). In addition, Perini, Abbott, and Rapee (2006) found that participants with social phobia were more likely than non-anxious participants to engage in rumination. Finally, self-focused rumination has also been shown to have a more negative influence on evaluations of one's worth in depressed participants than in non-depressed participants (Rimes & Watkins, 2005).

Sex Differences in Cognitive Emotion Regulation

There are likely numerous personal experiences and characteristics that lead people to develop tendencies to use particular cognitive emotion regulation strategies,

such as rumination, more than others. Although there is a paucity of research about predictors of emotion regulation strategies, the most consistent predictor in epidemiological studies on the prevalence of depression and anxiety is biological sex. In 2006, the Centers for Disease Control (CDC) found that 20.2% of women surveyed had been diagnosed with depression, compared with 8.2% of men. The survey results also indicated that 14.3% of women had been diagnosed with an anxiety disorder, compared with 8.2% of men (CDC, 2006). In addition, the World Health Organization (2008) has reported that global rates of depression are 50% higher for women than for men. These findings are consistently reported in every epidemiological study that has examined sex differences in the prevalence of affective disorders.

Researchers across disciplines have worked to explain and address these striking sex differences. For example, Susan Nolen-Hoeksema has developed an extensive body of theory and research on sex differences in depression, as well as sex differences in one's tendency to ruminate. Based on this research, she proposed a hypothesis that tendency to ruminate may be one explanation for the higher rates of depression in women than in men in the United States (e.g., Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993; Nolen-Hoeksema, Larson, & Grayson, 1999). In line with the contention that the way one responds to stress and negative events may be a better predictor of mental health than the nature of the stress or event itself (Garnefski & Kraaij, 2006; Suveg et al., 2010), Nolen-Hoeksema's theory posits that sex differences in tendencies to employ particular emotion regulation strategies (i.e., rumination) may contribute to the differences in the prevalence of depression and anxiety. A significant body of empirical research has

supported Nolen-Hoeksema's assertion that women tend to ruminate more than men (Garnefski et al., 2004; Grant et al., 2004; Nolen-Hoeksema & Larson, 1999; Nolen-Hoeksema et al., 1993, 1999; Ziegert & Kistner, 2002; Zlomke & Hahn, 2010) and that these differences may partially explain the relationship between biological sex and rates of depression (Grant et al., 2004; Nolen-Hoeksema et al., 1999).

Regarding differential use of other cognitive emotion regulation strategies, Zlomke and Hahn (2010) found that women were more likely than men to regulate emotion by putting their problems into perspective and that men were more likely than women to blame others for their negative experiences and emotional states. This is consistent with research findings that men who ascribed to more traditionally masculine ideals were more likely than less traditionally masculine men to employ psychological defenses that involved turning against others (Mahalik, Cournoyer, DeFranc, Cherry, & Napolitano, 1998). In addition, in their research on sex differences in cognitive emotion regulation strategies, Garnefski, Teerds, Kraaij, Legerstee, and Van den Kommer (2004) found that women were more likely than men to endorse the use of catastrophizing and positive refocusing.

The literature on cognitive emotion regulation has highlighted its connection to mental health and provided evidence that sex differences may exist in tendencies to use particular strategies. However, limitations and areas warranting additional exploration remain. First, although sex has been identified as one predictor of cognitive emotion regulation, the results of these studies often focus primarily on rumination and overlook a number of other strategies. Second, it has been theorized that sex differences in emotion

regulation contribute to the disparity in rates of affective disorders, yet very little research exists on possible explanations for sex differences in cognitive emotion regulation. Because we know that the sex differences literature is often characterized by small differences between the average male and average female and relatively large variability within males and females (Hyde, 2005), it is likely that a within-group characteristic can help to explain the sex differences in emotion regulation.

A Gendered Explanation

Nolen-Hoeksema (1991), in her early work on sex differences in the prevalence of depression and in women's tendencies to ruminate more than men, proposed some explanations for these differences in depression. For example, she cites literature that has shown that children may developing a tendency to ruminate in response to observing parents ruminating (Compas, 1987) or because they have not been taught to adequately employ problem-solving strategies (Cohn & Tronick, 1983). Given the premise of social learning theory that people learn from observing and imitating others (Bandura, 1986), and the importance of parents' teaching and modeling, it follows that parents (and later, peers) teach their children to respond to emotion in ways that are considered socially acceptable based on the child's sex (Block, 1978). Children then grow up within an environment that reinforces emotion regulation strategies that are consistent with these expectations (Nolen-Hoeksema, 1991).

For example, from a social learning perspective of gender role development, if a girl observes that after her parents get into an argument, her mother seems to continue to think through their disagreement and focus on her response of sadness and frustration,

she may begin to imitate this response in her own disagreements with others. Further, because rumination has been shown to be more typical behavior in women than in men, she will likely experience social reinforcement from her parents and peers for her response, increasing the likelihood that it will continue. In fact, Cox, Mezulis, and Hyde (2010) conducted a longitudinal study of gender role identity in mother-child dyads and found that mothers who endorsed traditional gender role attitudes encouraged emotional expression in their daughters. Further, this encouragement mediated the relationship between sex of the child and tendencies to ruminate at later time points.

Again, it is important to note that differences between the average man and the average woman are smaller than the variability within men and women (Hyde, 2005). One predictor of this within-group variability may be the extent to which one conforms to gender role norms. A type of social norm, gender role norms provide information about socially acceptable and expected ways to act, based on one's sex (Mahalik, 2000). Gender role norms function as both descriptive and injunctive norms in that they dictate what most people do in a particular situation as well as what people believe should be done in order to be accepted by a group (Cialdini, Reno, & Kallgren, 1990; Cialdini & Trost, 1999). The expectation that conformity to norms will lead to social acceptance makes them powerful predictors of human behavior (Reno, Cialdini, & Kallgren, 1993), including the ways in which individuals express gender. In other words, by observing others, one learns that the majority of men and the majority of women (within a particular culture) tend to act in different ways in multiple domains and that most well-liked and popular individuals behave in ways that are consistent with the behavior of the majority.

In this way, the observer comes to understand these expectations and that conforming to gender role norms will likely offer a degree of acceptance (Mahalik et al., 2003).

One of the behaviors for which gender roles dictate norms is how one responds to and manages emotion. For example, it is more socially acceptable for women than men to outwardly express sadness by crying and more socially acceptable for men than women to express anger through violence. Men are also more likely than women to endorse a desire to solve their problems on their own (Mahalik et al., 2003), while women are more likely than men to seek out supportive relationships with others (Mahalik et al., 2005). Therefore, these norms likely influence not only the ways in which emotion is expressed, but also the strategies employed to regulate emotion. In support of this, Broderick and Korteland (2002) found that adolescents' ideas about acceptable behavior based on their gender influenced their beliefs about appropriate emotion regulation strategies. Specifically, both male and female participants expressed implicit beliefs that boys and men should distract themselves from their problems rather than ruminate.

Purpose

The current study examined the relationships among sex, conformity to gender role norms, cognitive emotion regulation, and clinical symptoms. The focus was on cognitive emotion regulation strategies because of their relevance to research and practice in applied psychology. The nine cognitive emotion regulation strategies outlined in Garnefski et al.'s (2001) model were included and supplemented with a measure of cognitive distraction, creating a ten-strategy model. In addition, Nolen-Hoeksema's (1991) rumination scale was included in order to provide a second measure of the use of

ruminative strategies. Measures of depression and anxiety were used to provide information about the relationship between emotion regulation strategies and common psychological concerns. Importantly, the current study also sought to provide a more nuanced and meaningful understanding of the relationship between gender and emotion regulation by including conformity to masculine and feminine gender role norms.

Chapter 2: Literature Review

Awareness of mental illness and its societal impact has grown dramatically in recent years, leading the prevalence of psychiatric disorders to be framed as a contemporary public health crisis (Melton, 2010). Specifically, depression and anxiety are the most commonly reported and diagnosed psychiatric disorders both globally (WHO, 2008) and in the United States (NIMH, 2011). As reported above, current epidemiological research estimates that almost 15 million adults in the United States have major depression and 40 million adults have some form of an anxiety disorder (NIMH, 2011). These numbers are even more striking when one considers that many cases of mental illness are either undiagnosed or not reported. Applied mental health professionals and researchers across disciplines continue to work to advance understanding of contributors to these illnesses in order to identify effective methods of prevention and intervention. Numerous therapeutic and psychopharmacological treatments for depression and anxiety exist and are continually studied and improved upon. Much is still unknown, however, about the etiology of these illnesses, particularly regarding how psychological and psychosocial contributors to the development of depression and anxiety can be identified and addressed, ideally before the illness develops.

Cognitive Emotion Regulation and Mental Health

Emotion regulation and dysregulation have long been viewed as critical components of overall psychological functioning and mental health. Often, emotion regulation is viewed as one component of more general models of coping. One of the original and still most comprehensive models of the importance of how one copes with

stress is Lazarus and Folkman's (1987) Transaction Model of Stress and Coping. Lazarus and Folkman posited that the way in which one responds to and manages inevitable life stressors is key to his or her mental health and well-being. Their interpretation of stress was that it arose from transaction between the individual and the environment, in that the way in which one perceives and responds to environmental stressors determines the extent to which the stressors lead to an experience of stress (Lazarus & Folkman, 1987). These individual responses can be behavioral, such as seeking social support, or cognitive, such as employing positive reappraisal, or cognitively reframing the stressful situation to have a more positive meaning (Folkman & Lazarus, 1988). The model also posits that therefore, individuals can be taught to manage stressors in adaptive, functional ways that prevent them from triggering high levels of stress and resulting psychopathology (Lazarus and Folkman, 1987).

Within the field of applied psychology, the importance of one's capacity for emotion regulation is a common factor in a number of counseling theories. Some of the most popular evidence-based treatments for depression and anxiety, including Cognitive Behavioral Therapy (Beck, 1976) and Dialectical Behavioral Therapy (Linehan, 1993), address and seek to change the maladaptive ways in which people respond to their own emotional states. In addition, mindfulness and acceptance-based models of psychotherapy, such as Acceptance and Commitment Therapy (Hayes & Smith, 2005), continue to grow in popularity. A critical component of each treatment is the way in which patterns of thinking in response to emotion contribute to mental health.

The original theorist who placed the most emphasis on the importance of cognitive emotion regulation in particular was Beck (1976) and his theory and practice of Cognitive Therapy. Beck's theory is based upon the assumption that cognitive processes mediate the relationship between external information and one's emotional and psychological response. A critical point of intervention in Cognitive Therapy is to identify maladaptive or dysfunctional thought patterns in order to reduce negative mood and improve psychological functioning (Beck, 1976). These principles of Beck's theory of Cognitive Therapy are also central components of Cognitive-Behavioral Therapy, which has been established as one of the most effective short-term treatments for psychological disorders such as depression and anxiety (e.g., Hundt, Mignogna, Underhill, & Cully, 2012).

Alternatively, Dialectical Behavior Therapy (Linehan, 1993) views emotion dysregulation as a primary target of psychological intervention. As in general coping models, such as Lazarus and Folkman's, outlined above, Linehan's (1993) theory and model of intervention includes multiple domains of emotion regulation strategies, including behavioral and cognitive techniques. The model is often used for clients who have employed highly maladaptive methods of emotion regulation, such as self-injury. A key component of Dialectical Behavior Therapy is to teach individuals how to manage their emotions in more adaptive, non-destructive ways (Linehan, 1993). In addition, Linehan emphasizes the importance of valuing and accepting one's emotional responses.

Adaptive and Maladaptive Strategies of Cognitive Emotion Regulation

The existing research on adaptive and maladaptive cognitive emotion regulation strategies has made these distinctions primarily by identifying associations between specific cognitive emotion regulation strategies and symptomatology of psychological disorders such as depression and anxiety. Interest in categorizing strategies in this manner is related to their incorporation into a number of popular models of psychotherapy, as outlined above. For example, the ability to employ cognitive reappraisal is thought to be positively associated with mental health in both Lazarus and Folkman's (1984) model of coping and in Cognitive-Behavioral Therapy (Beck, 1976).

Research on cognitive reappraisal, defined as reinterpreting emotional situations or stimuli in unemotional terms (Gross, 1998), has provided evidence that it is associated with positive mental health outcomes. In an early study on the impact of employing cognitive reappraisal, Gross (1998) conducted an experiment in which equal numbers of male and female undergraduate students were shown a film of an amputation, designed to elicit disgust. Participants assigned to the reappraisal condition were then told to reinterpret the film in a way that minimized their emotional responses. Participants' expressive behavior, subjective experience, and physiological responses were then compared with those of a control group. Results indicated that participants who employed cognitive reappraisal showed less behavioral, subjective, and physiological signs of emotion than those in the control group.

Later studies supported Gross' (1998) original findings. In 2003, Gross and Oliver designed and validated measure of habitual use of reappraisal and suppression and tested their associations with mental health outcomes on another sample of undergraduate

students. Results indicated that participants who tended to employ reappraisal reported and expressed greater positive emotion and less negative emotion than those who tended to employ suppression. In addition, tendency to use reappraisal was positively related to well-being, although suppression was negatively related to well-being (Gross & Oliver, 2003).

A second cognitive emotion regulation strategy that has been historically associated with positive mental health outcomes is problem-solving. D'Zurilla and colleagues (e.g., Chang, D'Zurilla, & Sanna, 2009; D'Zurilla, 1990; D'Zurilla, Nezu, & Maydeu-Olivares, 2004; D'Zurilla & Sheedy, 1991) have developed an extensive body of literature on the positive impact of effective problem-solving on various aspects of psychological health. Central to their research is the assumption that problem-solving in response to stress can minimize negative psychological outcomes by helping one to manage stressors and reduce their emotional impact (D'Zurilla, 1990). In an early prospective study on a sample of undergraduates, D'Zurilla and Sheedy (1991) found that problem-solving ability predicted future levels of stress, in that higher problem-solving ability at the time of initial measurement predicted lower levels of stress at the time of the second measurement. These results indicate that problem-solving as a strategy of emotion regulation is likely to contribute to positive mental health.

Although the study described above does provide evidence that effective problem-solving leads to positive mental health outcomes and not the other way around, most of the research on problem-solving has identified non-directional associations. For example, ineffective problem-solving has been associated with higher levels of aggression in

adolescents and young adults (D'Zurilla, Chang, & Sanna, 2003), higher levels of worry in undergraduates (Belzer, D'Zurilla, & Maydeu-Olivares, 2002), and higher levels of depression and suicidal thoughts in both undergraduates and psychiatric inpatients (D'Zurilla, Chang, Nottingham, & Faccini, 1998). In addition, a randomized clinical trial examined the efficacy of therapies that focus on building problem-solving skills with supportive therapy and psychopharmacological therapy in individuals with depression (Klein et al., 2011). Results indicated that therapy focused on problem-solving did increase problem-solving skills and that change in one's ability to employ problem-solving predicted alleviation of depressive symptoms over time (Klein et al., 2011). It is important to note, however, that the magnitude of the associations between changes in problem-solving ability and changes in depression did not significantly vary across treatment conditions.

More recently, a growing body of research on acceptance, a key component of Acceptance and Commitment Therapy (Hayes & Smith, 2005), Dialectical Behavior Therapy (Linehan, 1993) and other mindfulness-based therapies, has indicated that it is also associated with positive mental health outcomes. For example, Gratz and Gunderson (2006) found that women diagnosed with Borderline Personality Disorder who participated in an acceptance-based intervention group that taught mindfulness techniques for managing difficult emotions displayed less self-injurious behavior and lower levels of depression post-treatment than those who participated in a control group. However, studies have also indicated that acceptance may be associated with negative mental health outcomes. For example, in an experimental design, Dunn, Billotti, Murphy,

and Dalgleish (2009) found that adult participants who were asked to intentionally employ acceptance in response to a distressing video of a car accident endorsed higher levels of emotionality at post-test than those who were asked to employ suppression. These mixed results suggest that, as a cognitive emotion regulation strategy, acceptance may function differently among individuals and circumstances and should continue to be explored in empirical research.

There are also a number of other cognitive emotion regulation strategies that have been associated with negative mental health outcomes, such as higher levels of depression or anxiety.

As described above in relation to reappraisal, suppression has also been identified as a cognitive emotion regulation strategy that may be associated with negative mental health outcomes (Gross & Oliver, 2003). Although one's intention in employing suppression is to remove unwanted emotions from awareness, it has been suggested that it has the paradoxical effect of increasing one's experience of that emotion. This was perhaps best illustrated in Wegner, Schneider, Carter, and White's (1987) classic "white bear" study, in which participants who were told not to think of a white bear were unable to keep that thought out of their awareness. Regarding mental health outcomes, high levels of suppression have been associated with depression (Ehring, Tuschen-Caffier, Schnulle, Fischer, & Gross, 2010), suicidal ideation (Petit et al., 2009), and anxiety symptoms (Keough, Timpano, Riccardi, & Schmidt, 2010). However, as described above in relation to acceptance, it has also been suggested that suppression is more effective than

acceptance in decreasing emotionality in response to viewing a distressing event (Dunn et al., 2009).

Similar in many ways to suppression, cognitive avoidance has also been identified in the literature as a maladaptive cognitive emotion regulation strategy. In a correlational study of undergraduate students' use of emotion regulation strategies and mental health outcomes, Barber and colleagues (2010) found that tendencies to cognitively and behaviorally avoid negative emotion were associated with a smaller ratio of positive to negative emotional experiences. Avoidance has also been associated with symptoms of Generalized Anxiety Disorder (Mennin, 2004; Olatunji, Moretz, & Zlomke, 2010). In addition, in a longitudinal study of the impact of cognitive avoidance on levels of depression and stress in middle-aged adults, Holahan, Moos, Holahan, Brennan, and Schutte (2005) found that baseline levels of avoidance were associated with increased life stressors four years later. These life stressors also linked avoidance coping with levels of depression ten years later (Holahan et al., 2005).

The studies above identified relationships between cognitive emotion regulation strategies and mental health outcomes by using measures for each variable and then drawing conclusions. Another way in which strategies have been categorized as either adaptive or maladaptive has been in identifying those that are more common in clinical or non-clinical samples of participants. Garnefski and colleagues (2002) surveyed 99 adults between the ages of 18 and 68 enrolled in outpatient psychotherapy services and 99 matched adults from the general population about their use of nine emotion regulation strategies: rumination, catastrophizing, self-blame, other-blame, acceptance, positive

reappraisal, putting into perspective, positive refocusing, and refocus on planning. Results indicated that positive reappraisal, self-blame, and catastrophizing were mostly strongly associated with clinical status. Specifically, positive reappraisal was more commonly reported in non-clinical samples than in clinical samples, while self-blame and catastrophizing were more commonly reported in clinical samples than in non-clinical samples.

In the only meta-analysis of the existing research on associations between cognitive emotion regulation strategies and psychopathology, Aldao, Nolen-Hoeksema, and Schweitzer (2010) analyzed the findings of 144 studies, including six cognitive emotion regulation strategies: acceptance, avoidance, problem solving, reappraisal, rumination, and suppression and four types of psychological concerns: anxiety, depression, eating disorders, and substance-related disorders. Effect size analyses across disorders indicated a large effect size for rumination, a medium to large effect size for problem-solving, suppression, and avoidance, and a small to medium effect size for reappraisal and acceptance (Aldao et al., 2010). The authors point out that these results are somewhat surprising, given the reliance on cognitive reappraisal and acceptance in popular treatment models such as Cognitive-Behavioral Therapy and mindfulness-based treatments (Aldao et al., 2010). Analyses of the relationships among emotion regulation strategies and specific psychological disorders indicated that rumination, suppression, and avoidance were positively associated with depression and anxiety, while problem-solving and reappraisal were negatively associated with depression and anxiety.

Acceptance was not significantly associated with depression or anxiety (Aldao et al., 2010).

Rumination and Response Styles Theory

Overall, the most researched cognitive emotion regulation strategy with the most consistent findings is rumination. Nolen-Hoeksema (1991) defined rumination as maintaining one's focus and attention on one's negative emotion as well as on the causes and consequences of the emotion. In a meta-analysis of studies on the impact of various forms of self-reflection on mental health, rumination was found to be most strongly associated with symptoms of depression (Mor & Winquist, 2002). Nolen-Hoeksema's response styles theory posits that because rumination involves focusing on negative emotion to the exclusion of problem-solving or taking action, a tendency to ruminate likely contributes to both the intensity and the duration of depressive episodes (Nolen-Hoeksema, 1993; Nolen-Hoeksema et al., 2008). The process by which Nolen-Hoeksema argued that rumination may intensify and extend depressive episodes included preventing instrumental behavior (assumed to be a more adaptive response), increasing the cognitive presence of negative memories, and increasing one's likelihood to attribute his or her depression to causes that are themselves depressing in nature (Nolen-Hoeksema, 1987).

Based on Nolen-Hoeksema's response styles theory, Morrow and Nolen-Hoeksema (1990) empirically examined the impact of ruminative and distractive responses to depressed mood on the intensity and duration of depressed mood. These authors also examined the impact of activity level (active versus passive) on the intensity and duration of depressed mood. Sixty-nine undergraduates first participated in a task

designed to induce sadness and then were randomly assigned to one of four response conditions: distracting-active, distracting-passive, ruminative-active, and ruminative-passive. In the distracting-active condition, participants completed a large card-sorting task that required physical activity in which they ranked countries according to level of industrialization. In the distracting-passive condition, participants read sentences about external events, such as the upcoming professional basketball playoffs. In the ruminative-active condition, participants completed the same task as in the distracting-active condition, except that the cards to be sorted had emotion words on them instead of the names of countries. In the ruminative-passive condition, participants read emotion-focused sentences, such as, "I often wonder why I feel the way I do." As predicted, results indicated that participants in the distracting-active condition experienced the greatest decrease in sadness, followed by those in the distracting-passive condition, then by those in the ruminative-active condition and then, with the least decrease in sadness, those in the ruminative-passive condition. Therefore, the researchers concluded that degree of rumination had a significant impact on alleviating sadness and that this impact was more significant than that of activity level.

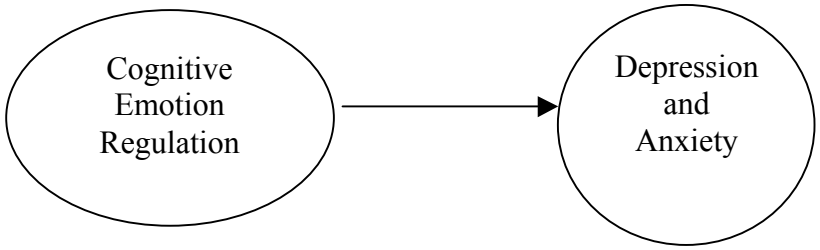
In addition to the experimental findings outlined above, correlational and longitudinal studies have also supported response styles theory. Nolen-Hoeksema and Morrow (1991) examined the relationship between use of rumination and depression in a sample of adults who had recently survived an earthquake. Results indicated that a ruminative response style measured before the earthquake and level of stress related to the earthquake predicted levels of depression 10 days after the event (Nolen-Hoeksema &

Morrow, 1991). In a study of male and female undergraduates who were asked to track their mood for 30 days, Nolen-Hoeksema, Morrow, and Frederickson (1993) found that rumination was positively associated with longer duration of depressed mood, regardless of initial severity of depression. In addition, Nolen-Hoeksema, Parker, and Larson (1994) conducted a longitudinal study of adults with terminally ill family members in which a tendency to ruminate was found to predict future depression for participants with both high and low initial depression scores.

Nolen-Hoeksema, Wisco, and Lyubomirsky (2008) updated response styles theory to accommodate more recent research. They point out that although the theory in general has been well-supported empirically, there are aspects that are less supported than others. For example, it now appears that rumination may impact the onset of a new depressive episode, but not necessarily the duration of an existing episode (Just & Alloy, 1997; Lara, Klein, & Kasch, 2000; Nolen-Hoeksema, 2000). The authors point out that these findings may result from a lack of variance in the extent to which one ruminates among already-depressed participants (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In addition, empirical findings on the influence of distraction on depressed mood are mixed, as it has also been found to be negatively correlated with depression in college students (Chang, 2004), positively correlated with depression in adults (Schmaling, Dimidjian, Katon, & Sullivan, 2002), and uncorrelated with depression in children (Abela, Brozina, & Haigh, 2002).

Hypothesis #1: Cognitive Emotion Regulation as a Predictor of Depression and Anxiety

The studies reviewed above outline the ways in which cognitive emotion regulation strategies have been associated with mental health outcomes. More specifically, this research has identified that certain strategies may be positively associated with depression and/or anxiety, while others are negatively associated with one or both of these disorders. The first hypothesis of the present study was that the cognitive emotion regulation strategies on which one tends to rely would predict levels of depression and anxiety.



Sex Differences in Cognitive Emotion Regulation

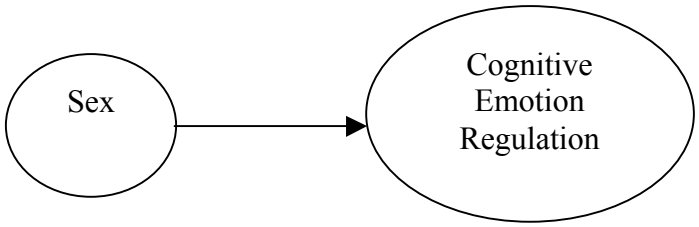
As previously described, research on predictors of cognitive emotion regulation strategies, or why some people tend to use particular strategies more than others, is very limited. However, research has found that there appear to be notable sex differences in the use of cognitive emotion regulation strategies. The most consistent research findings on these sex differences are in the use of rumination. In Nolen-Hoeksema's early work on the relationship between rumination and psychopathology, she also found empirical evidence that women are significantly more likely to employ rumination than men (e.g., Nolen-Hoeksema, 1986). Women displayed tendencies to ruminate more than men in samples of undergraduates (no demographic information provided; Nolen-Hoeksema, Morrow, & Frederickson, 1993), predominantly Caucasian undergraduates (Butler &

Nolen-Hoeksema, 1994; Zlomke & Hahn, 2010), a large, diverse sample of bereaved adults (Nolen-Hoeksema & Larson, 1999), and racially and ethnically diverse 25 to 75 year-olds (Nolen-Hoeksema, Larson, & Grayson, 1999). Other researchers have also found females to be more likely to ruminate than males in a variety of samples, including predominantly Caucasian preadolescents (Ziegert & Kistner, 2002), low-income African-American adolescents (Grant et al., 2004), and adults ranging from 18 to 71 years-old living in The Netherlands (Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004).

Although the most striking sex differences are in the use of rumination, which has been identified as a primarily maladaptive strategy, other research has indicated sex differences indicating that men and women tend to employ other strategies, both adaptive and maladaptive, to differing extents as well. Regarding differential use of other cognitive emotion regulation strategies, men were more likely to habitually use suppression than women in a sample of predominantly Causcasian and Asian-American undergraduates (Gross & Oliver, 2003). In the same study that identified Caucasian female undergraduates as more likely to ruminate than their male counterparts, Zlomke and Hahn (2010) also found that women were more likely than men to attempt to put their emotions and problems into perspective and that men were more likely than women to blame others for their problems. In Garnefski and colleagues' (2004) study of adults in the Netherlands that identified rumination as more common in women than in men, results also indicated that women were more likely than men to employ catastrophizing and positive refocusing.

Hypothesis #2: Sex Differences in Cognitive Emotion Regulation

These studies highlight the ways in which women and men may differ in their use of specific cognitive emotion regulation strategies. Although the majority of these studies have identified sex differences in the use of rumination, additional research has indicated that women and men may also rely on other cognitive emotion regulation strategies to differing degrees. The second hypothesis of the present study was that women and men would display tendencies to use different cognitive emotion regulation strategies.



Cognitive Emotion Regulation as a Mediator of Sex Differences in Depression and Anxiety

Susan Nolen-Hoeksema's response styles theory, outlined above, posits that differential cognitive responses to emotion may contribute to the intensity and duration of depression (Nolen-Hoeksema, 1987, 1993). Response styles theory was first developed to explain the existence of significant sex differences in the prevalence of depression. Specifically, Nolen-Hoeksema cited evidence that women displayed tendencies to ruminate, maintaining their focus on the causes and implications of their negative emotions, while men displayed tendencies to distract themselves from their concerns and emotions (Kleinke, Staneski, & Mason, 1982; Nolen-Hoeksema, 1986). Nolen-Hoeksema then surmised that these differences in responses to negative affect may contribute to

both higher rates of depression in women than men and longer duration of depressive episodes in women than in men (Nolen-Hoeksema, 1987).

Although Nolen-Hoeksema's theory originated from an attempt to explain sex differences in use of emotion regulation strategies, it has only been researched in terms of the associations between rumination and distraction and the intensity and duration of depressive episodes. In other words, sex differences have been identified in tendencies to use particular cognitive emotion regulation strategies, including findings that women are more likely to employ rumination than men. Research has also shown that the use of certain cognitive emotion regulation strategies, including rumination, has been associated with negative mental health outcomes, such as depression and anxiety. However, limited empirical research has examined these relationships concurrently in order to test Nolen-Hoeksema's theory that men and women's differential use of cognitive emotion regulation strategies contributes to sex differences in the prevalence of anxiety and depression.

To date, three studies have examined sex differences in rumination as a mediator of the sex differences in vulnerability to depression and in rates of depression (Roberts, Gilboa, & Gotlib, 1998, Nolen-Hoeksema, Parker, & Larson, 1994; Nolen-Hoeksema, Larson, & Grayson, 1999; Grant et al., 2004) and one has examined cognitive emotion regulation as a mediator of the relationship between gender and heightened risk for developing an anxiety disorder (Zlomke & Hahn, 2010). Nolen-Hoeksema, Parker, and Larson's (1994) examination of rumination and resulting depression in bereaved adults provided the early empirical evidence of this potential mediation. The authors found that

sex predicted tendency to ruminate, that tendency to ruminate predicted changes in levels of dysphoria, and importantly, that the relationship between sex and levels of dysphoria disappeared when the model statistically controlled for rumination (Nolen-Hoeksema, Parker, & Larson, 1994). These results suggest that tendency to ruminate mediates the relationship between sex and dysphoria.

In another relatively early study of this mediation, Roberts, Gilboa, and Gotlib (1998) surveyed undergraduate students to test a path model of sex, neuroticism, rumination, and dysphoria. Results indicated that although females were at a greater risk for developing dysphoria, sex did not directly contribute to the likelihood of having a lifetime episode of dysphoria. Rather, sex contributed to dysphoria only indirectly, through its impact on levels of neuroticism and tendency to employ rumination. Female participants who endorsed lower levels of neuroticism and tendency to ruminate than their male counterparts were not at elevated risk for dysphoria (Roberts, Gilboa, & Gotlib, 1998). These findings support Nolen-Hoeksema's (1987, 1993) hypothesis that it is differences in reliance on rumination that contribute to sex differences in rates of depression.

Nolen-Hoeksema, Larson, and Grayson (1999) hypothesized that pervasive structural and social inequity contributes to women's higher levels of rumination, higher levels of chronic strain, and less subjective experience of mastery than men. The authors suggested that these factors additively contribute to women's increased vulnerability to depression. They conducted two telephone interviews, one year apart, with 1,110 adults ranging in age from 25 to 75, to examine the relationships among chronic strain, low

mastery, rumination, and depression over time (Nolen-Hoeksema et al., 1999). Using path analyses, results indicated that sex was related to rumination, strain, and mastery, but was not related to depressive symptoms after controlling for rumination, strain, and mastery. In addition, allowing for a direct relationship between sex and depressive symptoms did not improve the fit of the model, indicating that rumination, strain, and mastery fully mediated the relationship between sex and depressive symptoms (Nolen-Hoeksema et al., 1999).

In an important addition to the research based on primarily Caucasian samples, Grant and colleagues (2004) examined interpersonal stressors and rumination as mediators of gender differences in depressive symptoms in low-income, African-American adolescents. Survey results indicated that, as has been found in Caucasian, adult samples, young African-American women were more likely than young African-American men to endorse symptoms of depression. Further, rumination (and not interpersonal stressors) was found to mediate the relationship between sex and depressive symptoms such that sex was not a significant predictor of depressive symptoms when rumination was included in the regression equation. A path model was then used to ensure that rumination was the mediator, rather than depression mediating the relationship between sex and rumination. These results revealed excellent fit of the model with rumination as the mediator and poor fit of the model with depression as the mediator, supporting the authors' interpretation of the initial analyses (Grant et al., 2004).

In addition, in a longitudinal study of racially and ethnically diverse early adolescents, Hilt, McLaughlin, and Nolen-Hoeksema (2010) examined rumination,

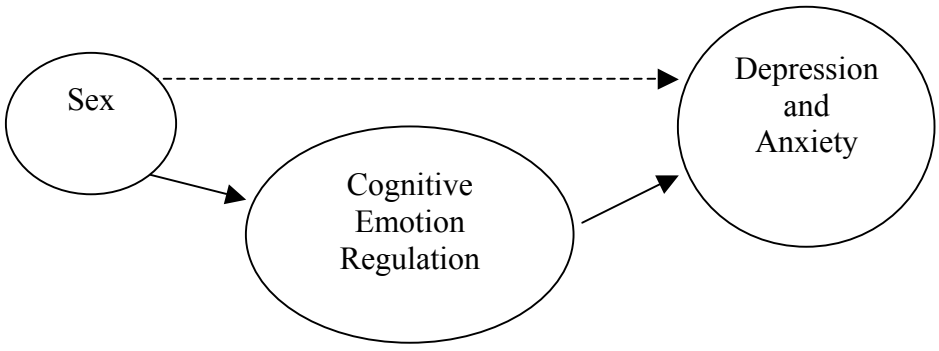
distraction, and problem-solving as predictors of changes in levels of depression over time. As predicted, a positive relationship between rumination and depression was found, as well as negative relationships between distraction and problem-solving and depression. Also as expected, adolescent girls reported higher levels of depression than adolescent boys. Response style, operationalized as both tendency to ruminate and ratio of use rumination to use of distraction and problem-solving, was found to mediate the observed sex differences in levels of depression (Hilt et al., 2010).

Zlomke and Hahn (2010) examined the role of cognitive emotion regulation strategies in sex differences in vulnerability to anxiety disorders. They surveyed a predominantly Caucasian sample of undergraduate students about their cognitive emotion regulation strategies, life stressors, and levels of anxiety, stress, and worry. Female participants endorsed higher levels of stress and worry than male participants. As described above, Zlomke and Hahn (2010) also found that women were more likely than men to endorse using rumination and putting into perspective, while men were more likely than women to endorse blaming others. The authors used hierarchical regression to assess the extent to which life stressors, cognitive emotion regulation strategies, and sex predicted levels of worry (as an indicator of vulnerability to anxiety). Results indicated that life stressors, entered into the equation first, accounted for 2% of the variance in worry, after which cognitive emotion regulation strategies accounted for an additional 24% of the variance, and, in the final step, sex accounted for an additional 6% of the variance in worry scores (Zlomke & Hahn, 2010). These results support the authors'

hypothesis that cognitive emotion regulation strategies appear to be a stronger predictor of vulnerability to anxiety than sex.

Hypothesis #3: Cognitive Emotion Regulation as a Mediator of Sex Differences in Depression and Anxiety

Research has explored the possibility that differential use of cognitive emotion regulation strategies may contribute to the dramatically higher rates of depression and anxiety in women than in men that are consistently reported in epidemiological research. The studies described above provide evidence that supports this idea that emotion regulation may mediate the relationship between sex and depression and anxiety. The third hypothesis of the present study was that cognitive emotion regulation strategies would mediate sex differences in levels of depression and anxiety. It was expected that sex differences in depression and anxiety would be found, with women reporting higher levels of both depression and anxiety than men, but that this relationship would significantly decrease or become nonsignificant when cognitive emotion regulation was added to the model and tested as a mediator.



Gender Role as a Mediator of Sex Differences in Emotion Regulation

Although the studies reviewed above have identified sex differences in tendencies to use particular cognitive emotion regulation strategies and reviewed some of the implications of differential use of strategies such as rumination, little research has addressed why these differences may exist. It is critically important to explore and identify meaningful explanations for observed differences between men and women, rather than to simply report them. Helms, Jernigan, and Mascher (2005) make a similar argument regarding the construct of race and its use in psychological research. These authors recommend replacing racial categories with conceptually meaningful variables and then examining the conceptual variables as mediators of the relationship between the racial categories and outcome variables (Helms et al., 2005). In accordance with these recommendations and in order to supplement sex with a theoretically more meaningful variable, the present study seeks to examine gender role as a mediator of sex differences in cognitive emotion regulation strategies.

Nolen-Hoeksema's early research and theory on her response styles theory included an explanation of the impact of gender role socialization on the development of tendencies to rely on emotion regulation strategies such as rumination and distraction (Nolen-Hoeksema, 1987). Specifically, she used traditional stereotypes of male and female behavior to explain how tendencies to ruminate or distract oneself may develop. For example, she notes that being emotional is part of the female stereotype, while ignoring one's feelings is part of the male stereotype (Nolen-Hoeksema, 1987). Although Nolen-Hoeksema made these speculations about the importance of gender role early in her research, subsequent studies have moved in the direction of identifying sex

differences in cognitive emotion regulation without an explanation of why these differences may exist.

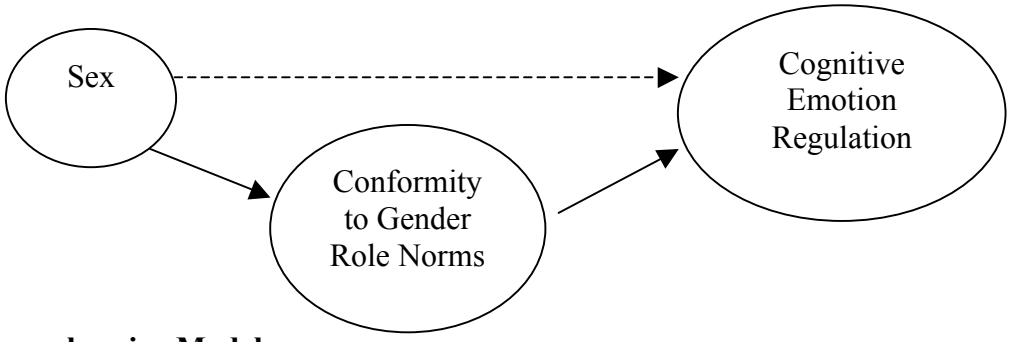
However, since the time of Nolen-Hoeksema's theorizing about the impact of gender role socialization on tendencies to ruminate or to distract oneself, gender role has become a frequently studied topic in psychological research. Literature on the impact of gender role socialization on men and women has provided a wealth of information about the ways in which female and male gender roles norms impact various aspects of personality and mental health. For example, adherence to feminine gender role norms has been positively associated with constructs such as feminist identity and symptoms of disordered eating (Mahalik et al., 2005). Adherence to masculine gender role norms has been positively associated with psychological distress, social dominance, aggression, and negatively associated with help-seeking behavior (Mahalik et al., 2003).

Although there is a well-developed body of literature on the importance of gender role socialization and its implications for mental health, theory about the ways in which conformity to gender role norms may contribute to sex differences in emotion regulation have not yet been fully examined. Research has indicated, however, that adolescent identification with a feminine gender role may be linked to increased depression with age and that adolescent boys and girls display gender-stereotypical beliefs that it is appropriate for girls and women to ruminate, but not for boys and men (Broderick & Korteland, 2002). In addition, Li, DiGiuseppe, and Froh (2006) examined masculinity, coping styles, and rates of depression in a sample of male and female adolescents. Results indicated that girls were more likely to ruminate than boys and that higher levels of

rumination were associated with higher levels of depression. Further, problem-focused coping and distraction mediated the negative relationship between masculinity and depression, which the authors interpreted as evidence that low levels of masculine traits may function as a risk factor for depression (Li et al., 2006).

Hypothesis #4: Gender Role as a Mediator of Sex Differences in Cognitive Emotion Regulation

As described above, very little research has examined why sex differences in cognitive emotion regulation exist. A separate body of research on gender role suggests that it is an important component of one's experience as male or female and that it likely contributes to the ways in which one regulates emotion. The fourth hypothesis of the present study was that conformity to gender role norms would mediate sex differences in use of cognitive emotion regulation strategies, such that the relationship between sex and cognitive emotion regulation would significantly decrease or become nonsignificant when conformity to gender role norms was added to the model and tested as a mediator.



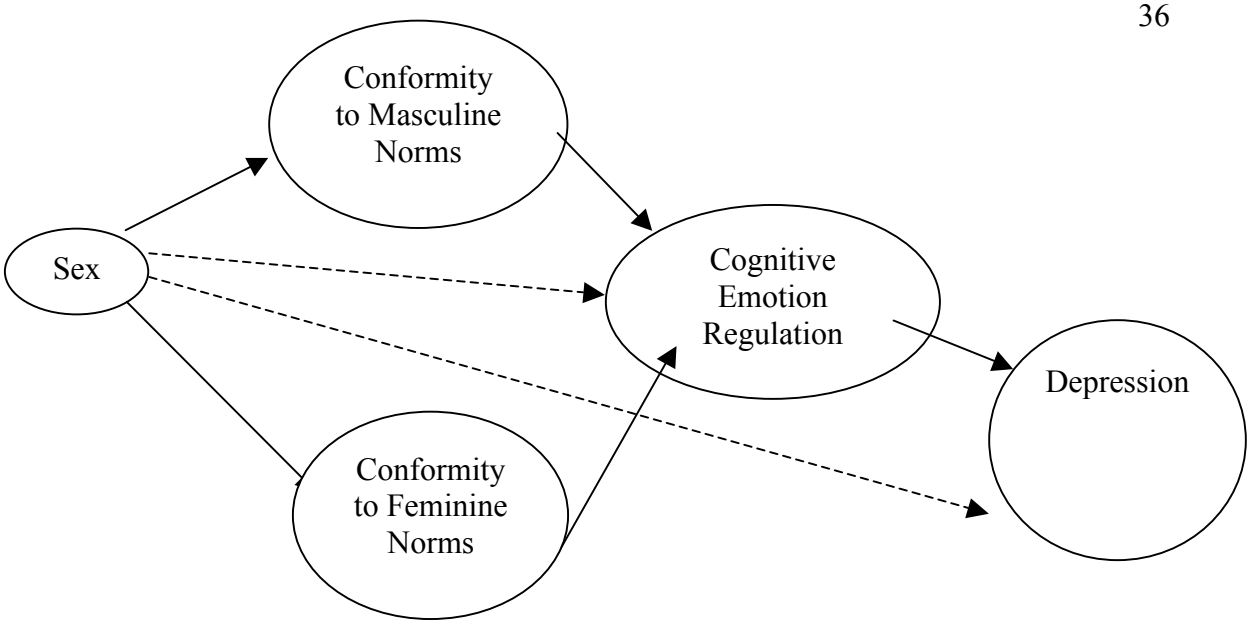
A Comprehensive Model

This study also sought to model the hypothesized relationships together. Examining multiple relationships simultaneously provides additional information about ways in which a more comprehensive model fits the data and may function as a set of

relationships rather than simply identifying individual relationships (Fassinger, 1987; Martens, 2005; Weston & Gore, 2006). Thus, in addition to the individual regression analyses, a model was created to investigate Nolen-Hoeksema's response styles theory that rumination explains sex differences in depression (Nolen-Hoeksema, 1993; Nolen-Hoeksema et al., 2008), and to extend the theory to include conformity to gender role norms as a possible mediator of sex differences in rumination.

The structural model designed to examine response styles theory was then applied to each of the other cognitive emotion regulation strategies included in the regression analyses. The majority of research on cognitive emotion regulation since Nolen-Hoeksema (1993) first developed response styles theory has also focused on rumination and its relationship to depression (e.g., Lara, Klein, & Kasch, 2000; Nolen-Hoeksema, Wisco, & Lyubormirsky, 2008). The models in the current study sought to replicate and extend this research by adding conformity to gender role norms as a meaningful explanation of why women and men might display differences in the extent to which they tend to employ a variety of emotion regulation strategies.

In addition, to avoid problematic multicollinearity (Weston & Gore, 2006), only one indicator of clinical symptoms could be entered into the model, as scores on the depression and anxiety measures were very highly correlated. In short, analysis of the full model (depicted below) complements the individual regression analyses by providing a more in-depth analysis of the core response styles theory, while including the unique addition of the mediating role of conformity to gender role norms.



Limitations of Existing Research

Although research has identified cognitive emotion regulation strategies as important predictors of levels of depression or anxiety, very few studies have examined the possible role of these strategies in explaining sex differences in depression and anxiety. The studies that have been done have looked predominantly at rumination as a mediator of the relationship between sex and depression (e.g., Nolen-Hoeksema et al., 1994) and have not addressed other prominent strategies, such as acceptance, reappraisal, or distraction. Therefore, examination of a more comprehensive model of strategies as possible mediators is needed. In addition, studies such as that of Zlomke and Hahn (2010) have provided evidence that cognitive emotion regulation may mediate the relationship between sex and symptoms of anxiety, which constitutes an important addition to the existing research on depression and warrants further exploration. As such, in the first set of analyses included in the present study, ten specific cognitive emotion regulation strategies (self-blame, acceptance, rumination, positive refocusing, refocus on planning,

positive reappraisal, putting into perspective, catastrophizing, other-blame, and distraction) were examined as mediators of the relationship between sex and both depression and anxiety.

A second limitation of the existing research is that, with some notable exceptions, the majority of studies on cognitive emotion regulation to date have used predominantly undergraduate samples. It is important that future research continue to examine the causes and correlates of emotion regulation in samples that are more representative of the population. Beyond age, this includes variables such as race, ethnicity, socioeconomic status, level of educational attainment, and sexual orientation. This is especially important for studies that seek to examine the relationship between sex or gender and emotion regulation and/or clinical symptoms, as important interactions may exist. Therefore, the present study used an online data collection strategy that has been shown to yield samples that are more representative of the adult population of the United States than undergraduate samples.

A third limitation of the existing literature is that, although scholars have provided evidence for the importance of considering gender role in studies on emotion regulation, empirical examinations of conformity to gender role norms as a mediator of women's and men's differential use of cognitive emotion regulation strategies are needed. Therefore, the inclusion of gender role in examinations of the relationships among sex, cognitive emotion regulation strategies, and mental health outcomes represents a critical addition to the current research. More specifically, the construct of conformity to gender role norms offers the possibility of a meaningful explanation for why these sex differences might

exist. Studies on children and adolescents (e.g., Broderick & Korteland, 2002; Cox, Mezulis, & Hyde, 2010) support the idea that these conceptualizations of normative male or female behavior develop in childhood, but research is needed to examine their impact on cognitive emotion regulation in adulthood. The present study's inclusion of gender role as a meaningful component of one's experience as male or female provides valuable information about the way in which conformity to gender role norms may influence use of cognitive emotion regulation strategies.

Overall, given the distinctions that have been identified between adaptive and maladaptive strategies, understanding the reasons individuals use particular strategies comprises a critical body of research that can inform effective assessment and treatment interventions. For example, if research provides information about risk factors for reliance on maladaptive cognitive emotion regulation strategies, preventative interventions can be designed to foster the development of adaptive strategies even before symptoms of psychopathology are present. Also, because gender role norms are socialized, addressing conformity to these norms may represent an important area of prevention and intervention.

In short, the proposed study sought to extend the existing research by examining the relationships among sex, gender role, cognitive emotion regulation, and clinical symptoms in a diverse sample of adult women and men. Gender role, operationalized as conformity to gender role norms, was examined as a meaningful component of biological sex. A comprehensive, 10-strategy model of cognitive emotion regulation was used and clinical symptoms were operationalized with measures of both depression and anxiety.

Summary of Hypotheses and Analyses

In order to examine both direct and indirect relationships, a model was designed incorporating the four hypotheses outlined above. It was tested first with a series of regression analyses and then the full model was tested with structural equation modeling. Thus, the hypotheses and analyses for the current study were the following:

Hypothesis 1: Cognitive emotion regulation strategies predict levels of depression and anxiety. To test this hypothesis, two multiple regressions were conducted with the 10 cognitive emotion regulation strategies as predictors, one with depression as the criterion variable and the other with anxiety as the criterion variable.

Hypothesis 2: Women and men display tendencies to use different cognitive emotion regulation strategies. To test this, a series of 11 regression analyses were conducted with sex as the predictor and each of the cognitive emotion regulation strategies as the criterion variables.

Hypothesis 3: Cognitive emotion regulation mediates sex differences in current levels of depression and anxiety. It is expected that sex differences in depression and anxiety will be found, with women reporting higher levels of both depression and anxiety than men, but that this relationship will significantly decrease or become nonsignificant when cognitive emotion regulation is added to the model and tested as a mediator. To test this hypothesis, two hierarchical regression analyses were conducted according to procedures for examining mediation outlined by Baron and Kenny (1986) and Frazier, Tix, and Barron (2004). With depression and anxiety as criterion variables, sex was

entered in the first step of each model and cognitive emotion regulation strategies were entered in the second step of each model.

Hypothesis 4: Conformity to gender role norms mediates sex differences in use of cognitive emotion regulation strategies, such that the relationships between biological sex and cognitive emotion regulation strategies significantly decrease or becomes nonsignificant when gender role conformity is added to the model and tested as a mediator. Similar to the procedure stated above for testing the third hypothesis, a hierarchical regression analysis was conducted with cognitive emotion regulation as the criterion variable, sex entered as a predictor variable in the first step of the model, and conformity to gender role norms entered as a predictor in the second step of the model.

Full Model: In addition, structural equation modeling was utilized to examine the extended version of response styles theory. Structural equation modeling offers a number of benefits, in comparison to regression analyses, that can help to provide more comprehensive and accurate results. One of these benefits is that it allows for the complex direct and indirect relationships among multiple latent constructs to be examined simultaneously (Martens, 2005). Another benefit of structural equation modeling is that it incorporates measurement error into the model, rather than assuming that variables were measured without error, as is the case in more traditional analyses such as regression (Weston & Gore, 2006). The structural equation model in the current study was designed to further examine: (1) the overall model fit of the proposed relationships (2) the direct effects of sex and each cognitive emotion regulation strategy on depression, (3) the indirect effect of sex on each cognitive strategy through conformity

to gender role norms, and (4) the indirect effect of sex on depression through both conformity to gender role norms and each cognitive emotion regulation strategy.

Chapter 3: Method

Participants

Seven hundred fifty-four adult participants were recruited via the online sampling procedures described below, 77% (581 participants) from Craigslist and 23% (173 participants) from Mechanical Turk. Fifty-five percent (n = 416) of the sample identified as female and 45% (n = 338) identified as male. The mean age was 34.81 years old (range 18-79 years, SD = 12.04). Two thirds of the sample identified as White (66%, n = 495), while the rest of the sample identified as Black or African-American (11%, n = 83), Latino or Hispanic (12%, n = 89), Asian or Asian-American (5%, n = 33), American Indian or Alaska Native (0.7%, n = 5), Hawaiian or Pacific Islander (0.3%, n = 2), Biracial or Multiracial (5%, n = 39), and Other (1%, n = 8). Regarding sexual orientation, the majority of the sample identified as heterosexual (85%, n = 643), followed by gay or lesbian (7%, n = 50), bisexual (5%, n = 40), other (2%, n = 12), and questioning or unsure (1%, n = 7). Almost half of the participants described themselves as single (43%, n = 320), while 28% (n = 209) reported being in a relationship, 29% (n = 218) reported being married, in a domestic partnership, or in a civil union, and 1% (n = 7) did not report relationship status. Educational status was measured as the highest grade level completed, with 0.4% (n = 3) reporting completing junior high school, 2% (n = 16) completing some high school, 33% (n = 252) completing high school, 19% (n = 140) completing an associate's degree, 33% (n = 251) completing a bachelor's degree, 11% (n = 79) completing a master's degree, and 2% (n = 16) completing a doctoral degree.

Measures

Conformity to Masculine Norms Inventory. The CMNI (Mahalik et al., 2003) assesses the extent to which one conforms to the traditional masculine gender role norms of the dominant culture in the United States. Mahalik et al. (2003) identified 11 distinct factors: Winning, Emotional Control, Risk-Taking, Violence, Dominance, Playboy, Self-Reliance, Primacy of Work, Power Over Women, Disdain for Homosexuals, and Pursuit of Status. This study used the CMNI-22, an abbreviated version of the full measure that includes the two highest loading items for each factor. Items are answered on a 4-point scale, ranging from 0 (Strongly Disagree) to 3 (Strongly Agree). Total scores were calculated by summing across items, with high scores indicating high conformity to traditional masculine gender role norms. Sample items include, "Winning isn't everything, it's the only thing" (Winning), "I like to talk about my feelings" (Emotional Control, reverse-coded), "I enjoy taking risks" (Risk-Taking), "Sometimes violent action is necessary" (Violence), "I make sure people do as I say" (Dominance), "I would feel good if I had many sexual partners" (Playboy), "It bothers me when I have to ask for help" (Self-Reliance), "My work is the most important part of my life" (Primacy of Work), "I love it when men are in charge of women" (Power Over Women), "It is important to me that people think I am heterosexual" (Disdain for Homosexuals), and "I would hate to be important" (Pursuit of Status, reverse-coded). Research has indicated positive correlations between CMNI scores and scores on measures of social dominance, aggression, and negative attitudes toward help-seeking (Mahalik et al., 2003). Regarding reliability, the CMNI-22 has been shown to highly correlate at .92 with the full-length form of the measure and Cronbach's alpha for the CMNI-22 was .73 in a sample of gay

men (Hamilton & Mahalik, 2009) and .70 in a sample of men with prostate cancer (Burns & Mahalik, 2008). Cronbach's alpha in the present study was .71 for men, .61 for women, and .70 for the full sample.

Conformity to Feminine Norms Inventory. The CFNI (Mahalik et al., 2005) assesses the extent to which one conforms to the traditional feminine gender roles norms of dominant culture in the United States. Mahalik et al. (2005) identified eight distinct factors: Nice in Relationships, Thinness, Modesty, Domestic, Care for Children, Romantic Relationship, Sexual Fidelity, and Invest in Appearance. This study used the CFNI-16, an abbreviated version of the full measure comprised of two items from each subscale. Like the CMNI, items are answered on a 4-point scale, from 0 (Strongly Disagree) to 3 (Strongly Agree). Total scores were summed, with higher scores indicating high conformity to traditional feminine gender role norms. Sample items include: "It is important to let people know they are special" (Nice in Relationships), "I would be happier if I was thin" (Thinness), "I always downplay my achievements" (Modesty), "I enjoy spending time making my living space look nice" (Domestic), "Taking care of children is extremely fulfilling" (Care for Children), "I pity people who are single" (Romantic Relationship), "I would feel guilty if I had a one-night stand" (Sexual Fidelity), and "It is important to look physically attractive in public" (Invest in Appearance). Scores on the CFNI have been positively correlated with femininity scores on the Bem Sex Role Inventory (Bem, 1981) and to the Passive Acceptance (low feminist identification) subscale of the Feminist Identity Composite (Fischer et al., 2000; Mahalik et al., 2005). Internal consistency estimates have been approximated at .88 for total CFNI

scores, with alphas for each subscale ranging from .77 for Romantic Relationship to .92 for Care for Children (Mahalik et al., 2005). In addition, the 16-item version has been highly correlated with the full version of the measure (r = .88 Mahalik, personal communication). Cronbach's alpha in the present study was .65 for women, .54 for men, and .66 for the full sample.

Cognitive Emotion Regulation Questionnaire. The CERQ (Garnefski et al., 2001) assesses the extent to which one tends to use particular cognitive emotion regulation strategies after experiencing stressful life events. The 36-item measure includes four items for each of nine strategies: Self-Blame, Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting Into Perspective, Catastrophizing, and Other-Blame. Items are rated from 1 [(almost) never] to 5 [(almost) always] in response to the question, "How do you cope with events?" Subscale scores for each dimension, ranging from 4 to 20, were obtained by summing responses to the four items of each subscale, with higher scores representing more frequent use of each strategy. Sample items include: "I feel that I am the one to blame for it" (Self-Blame), "I think that I have to accept that this has happened" (Acceptance), "I often think about how I feel about what I have experienced" (Rumination), "I think of pleasant things that have nothing to do with it" (Positive Refocusing), "I think about how I can best cope with the situation" (Refocus on Planning), "I think I can learn something from the situation" (Positive Reappraisal), "I think that it hasn't been too bad compared to other things" (Putting Into Perspective), "I keep thinking about how terrible it is what I have experienced" (Catastrophizing), and "I feel that others are to blame for it" (Other-Blame).

Internal consistency estimates vary by subscale, with alphas reported to range from .68 for Blaming Others to .83 for Rumination (Garnefski et al., 2001). Cronbach's alphas in the present study ranged from .76 for Acceptance to .88 for Positive Reappraisal.

Response Styles Questionnaire- Ruminative Responses Scale. The RSQ-RRS (Nolen-Hoeksema & Morrow, 1991) assesses how often one engages in a ruminative thought process in response to feelings of sadness or depression. The 22-item measure includes three dimensions of ruminative thought: self-focused (e.g., "I think 'Why do I react this way?'"), symptom-focused (e.g., "I think about how hard it is to concentrate"), and focused on possible consequences and causes of one's mood (e.g., "I think 'I won't be able to do my job if I don't snap out of this'"). Items are answered on a 4-point scale from 1 (almost never) to 4 (almost always), yielding a total summed score with higher values indicating a higher tendency to ruminate. High RSQ scores have been correlated with a tendency to exhibit ruminative responses to depression in a journal study and preferences for emotion-focused tasks over non-emotional tasks (Nolen-Hoeksema et al., 1994). This RSQ Rumination scale and the CERQ Rumination subscale described above were both included in the main analyses as separate variables. Regarding reliability, Cronbach's alpha has been reported as .90 in an adult sample (Nolen-Hoeksema et al., 1994). Cronbach's alpha in the present study was .95.

Cognitive Avoidance Questionnaire. The CAQ (Gosselin et al., 2002; Sexton & Dugas, 2007) assesses the extent to which individuals typically employ strategies of cognitive avoidance. For this study, the 5-item Cognitive Distraction subscale was used. Items are answered on a 5-point scale from 1 (not at all) to 5 (completely typical) and

include items such as “I distract myself to avoid thinking about certain disturbing subjects” and “To avoid thinking about subjects that upset me, I force myself to think about something else.” Scores on the Distraction subscale have been positively correlated with scores on alternate measures of cognitive suppression (Sexton & Dugas, 2007). Cronbach’s alpha for the Distraction subscale has been reported at .89 (Sexton & Dugas, 2007). Cronbach’s alpha in the present study was .92.

Depression, Anxiety, and Stress Scale. The DASS (Lovibond & Lovibond, 1995) includes subscales to assess levels of each category: Depression, Anxiety, and Stress. The original, full-length measure includes 14 items for each category. For the purposes of this study, only the Depression and Anxiety subscales of the 21-item version (DASS-21) were used, with 7 items each for depression and anxiety, and raw scores were doubled per the authors’ suggestion when using the short version (Lovibond & Lovibond, 1995). In response to the prompt, “Indicate how much the statement applied to you over the past week,” items are rated from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). Sample items include “I felt down-hearted and blue” (Depression) and “I found it difficult to relax” (Anxiety). Although questions have been raised about the construct measured by the “Stress” subscale, research has supported that the Depression and Anxiety subscales measure their intended constructs (Crawford & Henry, 2003; Lovibond & Lovibond, 1995). In addition, DASS-21 scores measuring depression and anxiety have been correlated with independent measures of these constructs, including the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983; Henry & Crawford, 2005). Cronbach’s alphas have been reported as .88 for the

Depression subscale and .82 for the Anxiety subscale (Henry & Crawford, 2005). Cronbach's alpha in the present study (for the full sample) was .93 for the Depression scale and .84 for the Anxiety scale.

Procedure

Two approaches were taken to recruiting participants. First, the survey link was posted on Mechanical Turk, a website designed to offer paid tasks to individuals looking for even very small amounts of compensation. Through this venue, participants were offered $1 for completing the survey. Preliminary research on Mechanical Turk provides empirical evidence that it is an inexpensive and efficient way to procure large, highly representative samples (Buhrmester, Kwang, & Gosling, 2011). When response rates slowed via Mechanical Turk, the survey link was posted on Craigslist in discussion forums under "Etc." jobs in six cities/metro areas: Boston, New York, Los Angeles, Chicago, Miami/South Florida, and Dallas. Participants recruited via Craigslist were entered into a raffle for one of three $50.00 Visa gift cards.

Participants completed the study online using the secure survey administration site PsychData. After giving informed consent and confirming that they were over 18 years of age and living in the United States, participants were asked to provide demographic information and were then randomly assigned to one of three counterbalanced survey forms.

Eight hundred fifty-nine individuals consented to participate. One hundred five were removed from the sample for the following reasons: 90 skipped more than 50% of at least one of the measures, eight did not identify their sex, and seven identified their sex

as transgender or other. The remaining 754 participants comprised the sample used in the analyses.

Chapter 4: Results

Preliminary Analyses

Means, standard deviations, intercorrelations, and internal consistency estimates (α) for all predictor and criterion variables are reported for females and males together in Table 1, and for females and males separately in Tables 2 and 3, respectively. To determine how similar this sample was to others using the same measures, mean scores were compared to those in other adult samples, when available. For the CMNI-22, the mean, for men only, in the current sample was within half of a standard deviation of Rochlen, McKelley, Suizzo, and Scaringi's (2008) sample of stay-at-home fathers. The CMNI-22 has not yet been used with female participants. In addition, no comparison samples are currently available for the CFNI-16.

Regarding the CERQ subscales, means and standard deviations were compared to those reported by Garnefski, Kraaij, and Spinhoven (2002), separately for men and women. Mean scores for both women and men were all within one half of a standard deviation of the comparison sample on Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, and Putting Into Perspective. Mean scores were within one standard deviation of the comparison sample for Self-Blame, Catastrophizing, and Other-Blame, with both women and men in the current sample reporting higher levels of each than the comparison sample.

For the Ruminative Responses Scale of the Response Styles Questionnaire (Nolen-Hoeksema et al., 1994), mean scores for women and men in the current sample were compared to the general adult sample in Nolen-Hoeksema and colleagues' (1999)

examination of gender differences in depressive symptoms. For both women and men in the current sample, mean scores were within one standard deviation of the comparison sample, with both groups reporting higher levels of rumination in the present study. In addition, the present sample's (women and men combined) mean score on the Distraction subscale of the Cognitive Avoidance Questionnaire was within one half of a standard deviation of the mean from an undergraduate, but otherwise general adult sample (Olatunji, Moretz, & Zlomke, 2010).

For current depression and anxiety, DASS-21 scores for women and men combined were compared to those in Henry and Crawford's (2005) large nonclinical adult sample and were within one standard deviation of that sample, with the current sample reporting higher levels of both depression and anxiety.

To assess normality, skewness and kurtosis were examined for all continuous variables. The DASS Anxiety subscale and the CERQ Other-Blame subscale were both positively skewed. To correct for this, square roots were used to transform each subscale score and the transformed variables are reported as the Anxiety and Other-Blame variables. For Anxiety, skewness changed from 1.13 to 0.85 and kurtosis from 0.58 to -0.17. For Other-Blame, skewness changed from 1.20 to 0.58 and kurtosis from 2.19 to 0.67.

Missing Data

After participants who had skipped more than half of at least one measure were removed from the sample, SPSS 20 was used to conduct multiple imputation to address the remaining missing values. Multiple imputation is considered preferable to other

methods of data replacement due to its use of multiple imputed data sets to create more precise estimates of missing values than other procedures (Schlomer, Bauman, & Card, 2010). SPSS imputed five data sets, which is considered to be sufficient for the replacement of missing values in most data sets (Schlomer, Bauman, & Card, 2010). Where possible, statistics for the pooled data set are presented. Exceptions, such as in ANOVAs due to inflated degrees of freedom, are noted below.

Addressing Multiple Sources of Data

Because two distinct means of online data collection were used, Craigslist (n = 581) and Mechanical Turk (n = 173), additional preliminary analyses were conducted to look for any significant differences between the two sets of participants. Specifically, independent samples t-tests were used to test for statistically significant differences between the two groups on demographic variables. There were significant differences in age for Craigslist (M = 33.58, SD = 11.81) and Mechanical Turk (M = 38.94, SD = 11.92) participants; $t(750) = -5.22$, $p < .01$. There were also significant differences in race and ethnicity for Craigslist (M = 5.22, SD = 1.43) and Mechanical Turk (M = 5.54, SD = 1.20) participants; $t(751) = -2.73$, $p < .01$. There were also significant differences in sex for Craigslist (M = 1.61, SD = 0.49) and Mechanical Turk (M = 1.36, SD = 0.48) participants; $t(752) = 5.77$, $p < .01$. Finally, there were significant differences in sexual orientation for Craigslist (M = 1.31, SD = 0.81) and Mechanical Turk (M = 1.10, SD = 0.39) participants; $t(750) = 3.24$, $p < .01$. Thus, the Craiglist sample was younger and included fewer White, male, and heterosexual participants in comparison to the Mechanical Turk sample.

Next, correlations and one-way ANOVAs were conducted to determine if differences related to source of data accounted for significant variance in cognitive emotion regulation, depression, or anxiety scores. Correlational results indicated that age was significantly and negatively correlated with a number of emotion regulation strategies, including Self-Blame ($r = -.13$, $p < .01$ $_{2\text{-tail}}$), Acceptance ($r = -.12$, $p < .01$ $_{2\text{-tail}}$), Rumination ($r = -.21$, $p < .01$ $_{2\text{-tail}}$), Positive Reappraisal ($r = -.11$, $p < .01$ $_{2\text{-tail}}$), Putting Into Perspective ($r = -.08$, $p < .05$ $_{2\text{-tail}}$), Catastrophizing ($r = -.10$, $p < .01$ $_{2\text{-tail}}$), Other-Blame ($r = -.10$, $p < .01$ $_{2\text{-tail}}$), RSQ Rumination ($r = -.20$, $p < .01$ $_{2\text{-tail}}$), and Distraction ($r = -.15$, $p < .01$ $_{2\text{-tail}}$). Age was also negatively correlated with Anxiety ($r = -.13$, $p < .01$ $_{2\text{-tail}}$). In addition, educational status was significantly and negatively correlated with Catastrophizing ($r = -.11$, $p < .01$ $_{2\text{-tail}}$), RSQ Rumination ($r = -.12$, $p < .01$ $_{2\text{-tail}}$), Depression ($r = -.10$, $p < .01$ $_{2\text{-tail}}$) and Anxiety ($r = -.13$, $p < .01$ $_{2\text{-tail.}}$

One-way ANOVAs examined differences among groups on the non-continuous outcome variables with more than two groups, specifically, race/ethnicity, sexual orientation, and relationship status. Results for the original data were used, as analyses on the pooled data yielded inflated degrees of freedom. There were significant differences on several CERQ subscales for race/ethnicity, including Acceptance [$F(7, 730) = 2.10$, $p < .05$], Positive Refocusing [$F(7, 728) = 5.94$, $p < .01$], Refocus on Planning [$F(7, 728) = 3.66$, $p < .01$], and Positive Reappraisal [$F(7, 724) = 3.96$, $p < .01$]. For sexual orientation, there were also significant differences among groups on a number of emotion regulation strategies, including Self-Blame [$F(4, 726) = 2.68$, $p < .05$], Acceptance [$F(4, 731) = 2.42$, $p < .05$], Rumination [$F(4, 737) = 3.07$, $p < .05$], RSQ Rumination [$F(4,$

656) = 3.47, $p < .01$], and Distraction [$F(4, 739) = 4.50$, $p < .01$], as well as for Depression [$F(4, 713) = 6.38$, $p < .01$] and Anxiety [$F(4, 732) = 4.32$, $p < .01$]. Significant group differences for relationship status were found only for the RSQ Rumination scale [$F(2, 654) = 7.91$, $p < .01$].

In short, each of the demographic variables was found to have a significant relationship with at least one, and often many, of the outcome measures. Therefore, the strategy was to enter these variables into the regression analyses as control variables. To do so, the categorical variables were dummy-coded, with participants endorsing the level of the variable represented in the label assigned a value of 1 and those endorsing all other levels of the variable assigned a value of 0. To create the variable "White," participants who had identified as White/Caucasian were assigned a value of 1, while those with all other responses were assigned a value of 0. Similarly, to create the variable "Black," participants who identified as Black or African-American were assigned a value of 1, while those with all other responses were assigned a value of 0. To create the variable "Latino," participants who identified as Latino or Hispanic were assigned a value of 1, while those with all other responses were assigned a value of 0. New variables were not created for participants who identified as Bi/Multi-racial, Asian or Asian-American, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, or Other, as they represented a small number of participants, at 5%, 4%, 0.7%, 0.3%, and 0.9% of the sample, respectively.

To create the variable "Heterosexual," participants who identified as such were coded as 1, while all other identifications were coded as 0. Results for participants who

identified as heterosexual could then be distinguished from those who identified as Gay or Lesbian, Bisexual, or Questioning/Unsure. This dichotomy was chosen over multiple variables, as were created for race, because of the small number of participants identifying as each identity other than heterosexual. In addition, because this decision was made to compare only two groups, just the variable labeled "Heterosexual" was entered into the analyses as a control.

Although participants identified as either Single, In a Relationship, or Married, Domestic Partnership, or Civil Union, research has highlighted differences in women's and men's experiences as a function of being either unmarried or married (e.g., Stanley, Ragan, Rhoades, & Markman, 2012). Therefore, based on this research, the decision was made to create one dummy variable: "Single," which included participants who identified as either Single or In a Relationship. After the above variables were created, the variables for age and educational status, and the dummy variables for race, sexual orientation, and relationship status, were all entered into the first step of each regression analyses in order to remove the variance associated with these demographic characteristics.

Main Analyses

Hypothesis 1. To test the hypothesis that cognitive emotion regulation strategies (CERS) would predict current levels of depression and anxiety, two multiple regressions were conducted with each of the 11 CERS (including two rumination scales) as predictors, the first with depression as the criterion variable and the second with anxiety as the criterion variable (both presented in Table 4). Because SPSS does not generate *F,* R^2, and β values for pooled data, the values reported below are for the original data.

Examination of the β values for the five imputed data sets showed that all β values, across analyses and data sets, were equivalent when rounded to two decimal places, so presentation of the original values was deemed sufficient. Results indicated that cognitive emotion regulation strategies as a group were significant predictors of depression, F (18, 515) = 30.06, $p < .001$. After accounting for the variance associated with the demographic variables described above, CERS explained an additional 49.5% of the variance in depression (R^2 change = .45, $p < .001$). Specifically, when all of the strategies were included in the model together, endorsement of Self-Blame (β = .16, $t = 4.13$, $p < .001$), the RSQ Rumination scale (β = .50, $t = 12.21$, $p < .001$) and the CAQ Distraction scale (β = .07, $t = 2.47$, $p < .05$) predicted higher current depression scores. The other strategies did not significantly predict current depression when modeled with all of the emotion regulation variables.

For anxiety, results indicated again that CERS overall were significant predictors of anxiety, F (18, 527) = 16.65, $p < .001$. After accounting for the variance associated with the demographic variables described above, CERS explained an additional 30.1% of the variance in anxiety (R^2 change = .30, $p < .001$). Specifically, when all of the strategies were included in the model together, endorsement of Self-Blame (β = .12, $t = 3.83$, $p < .001$), Other-Blame (β = .13, $t = 3.79$, $p < .001$), the RSQ Rumination scale (β = .44, $t = 9.66$, $p < .001$), and Distraction (β = .09, $t = 3.34$, $p < .01$) predicted higher anxiety scores, while Acceptance (β = -.10, $t = -3.05$, $p < .01$) and Refocus on Planning (β = -.14, $t = -2.35$, $p < .05$) predicted lower anxiety scores.

Hypothesis 2. To test the hypothesis that women and men would display tendencies to use different emotion regulation strategies, a series of 11 regression analyses were conducted with the demographic variables in the first step, sex as the predictor in the second step, and each of the CERS scales as the criterion variables (see Table 5). Results indicated that sex was a significant predictor of participants' scores on the RSQ Rumination scale [F (8, 651) = 7.83, $p < .001$; adjusted $R^2 = .08$] and the CAQ Distraction scale [F (8, 734) = 3.46, $p < .01$; adjusted $R^2 = .03$]. After accounting for the variance associated with the demographic variables described above, results indicated that the addition of the sex into the model explained a small, but statistically significant additional 1.0% of the variance in RSQ Rumination (R^2 change = .01, $p < .05$) and 1.0% of the variance in Distraction (R^2 change = .01, $p < .05$). More specifically, being female predicted higher scores on both RSQ Rumination ($\beta = .09$, $t = 2.61$, $p < .01$) and CAQ Distraction ($\beta = .08$, $t = 2.08$, $p < .05$). No significant sex differences were found for the other strategies.

Hypothesis 3. To test the hypothesis that CERS would mediate sex differences in depression and anxiety, regression analyses were conducted according to Baron and Kenny's (1986) criteria for mediation: (1) a significant relationship between the predictor and the mediator, (2) a significant relationship between the predictor and the criterion, (3) a significant relationship between the mediator and the criterion, and (4) the relationship between the predictor and the criterion decreases significantly when the mediator is added to the regression model, and (5) after its addition to the model, the mediator maintains a significant relationship with the criterion.

Regarding the first requirement that the predictor be related to the mediator, significant relationships between sex and two of the cognitive emotion regulation strategies, the RSQ Rumination scale and the CAQ Distraction scale, were established in the prior analysis. To address the second requirement, a direct relationship between sex and depression and anxiety, two regression analyses were conducted with the sex as the predictor variable, one with depression as the criterion variable and one with anxiety as the criterion variable. Results for both analyses indicated that sex was not a significant predictor of depression ($\beta = .01$, $t = 0.37$, $p > .05$) or anxiety ($\beta = .04$, $t = 1.54$, $p > .05$). Therefore, further mediation analyses were not conducted, as there was no significant relationship to mediate.

Hypothesis 4. To test the hypothesis that conformity to gender role norms would mediate sex differences in cognitive emotion regulation, Baron and Kenny's (1986) steps were again followed. First, significant correlations in the predicted directions were established between sex and CMNI ($r = -.32$, $p < .01$) and CFNI ($r = .43$, $p < .01$) scores. Second, the regression analyses conducted to examine the second hypothesis, that women and men would display tendencies to use different CERS, yielded statistically significant differences only for the RSQ Rumination scale and Distraction, with women reporting higher scores on both than men (see above). Two hierarchical regression analyses were then conducted with each of the significant emotion regulation strategies (RSQ Rumination and Distraction) as criterion variables, demographic variables in the first step, sex entered in the second step, and CMNI and CFNI scores added into the third step of the model. Results indicated that sex significantly predicted CAQ Distraction scores in

the second step of the model (β = .06, $t = 2.06$, $p < .05$) and this relationship remained significant in the third step of the model (β = .09, $t = 2.42$, $p < .05$; see Table 6).

Interestingly, the significance of the relationship between sex and RSQ Rumination that was present before the CMNI and CFNI scores were added into the model (β = .09, $t = 2.41$, $p < .05$) increased when conformity to gender role norms was added into the model (β = .11, $t = 2.77$, $p < .01$; see Table 6). This indicates that conformity to gender role norms appears to function as a suppressor variable rather than a mediating variable. Suppressor effects occur when a variable highly correlated with the predictor is entered into a model, which accounts for additional variance in the predictor variable that is not associated with the criterion variable and thereby statistically strengthens the relationship between the predictor and criterion (Pedhauzer, 1997). Further, this is an example of classical suppression (Horst, 1941) because the conformity to gender role norms scales were found to have very small correlations with the RSQ rumination scale ($r = .02$ for both correlations, see Table 1).

Structural Equation Modeling

As it included a number of relationships to be modeled and examined simultaneously, structural equation modeling was used to test the full model. All variables included in the structural equation model had been examined for skewness and kurtosis for prior analyses and were determined to be normally distributed. In order to import a complete data set into AMOS 19 for the following analyses, one of the imputed data sets developed for the regression analyses was chosen at random.

Constructing item parcels. One of the primary advantages of using structural equation modeling is that it allows for the analysis of relationships among latent variables. Often, multiple measures are used to represent each latent construct. Because the current model included only a single measure per construct, item parceling was conducted in order to form multiple manifest indicators of each latent variable (e.g., items on the RSQ Rumination scale were purposefully organized and distributed to form several measurements of the latent variable "rumination"). Parceling uses configurations of items from single measures to create multiple indicator variables, allowing one to transform a path model consisting of only observed variables into a latent variable model (Coffman & MacCallum, 2005). One of the primary benefits of this approach is that it accounts for measurement error that is inherent in path models with only observed variables (Little, Cunningham, Shahar, & Widaman, 2002). For the purposes of this study, a factorial algorithm method (Matsunaga, 2008) was used to create parcels. First, an exploratory factor analysis was conducted for all items of each measure. Second, parcels were created by distributing the items evenly across groups so that each parcel was comprised of items with both relatively high and relatively low factor loadings.

Research has indicated that three is the ideal number of parcels (Matsunaga, 2008), therefore items were divided into three parcels for each measure. For the CMNI scale, this resulted in two parcels of eight items each and one parcel of seven items. The CFNI was divided into two parcels of five items each and one of six items. The RSQ Rumination scale was divided into two parcels of seven items each and one parcel of eight items. For the DASS-21 Depression scale, this method resulted in two parcels of

two items each and one parcel of three items. In order to allow the shorter CAQ Distraction CERQ subscales to be entered into latent structural models, the individual items for each measure were used as indicators.

Measurement model. Before analyzing the relationships among latent constructs, a measurement model was tested to determine the accuracy of the proposed relationships among measured variables (i.e., parcels) and latent constructs. Factor loadings ranged from .67 on one factor each of the CMNI and CFNI to .95 on the original measurement model, for RSQ Rumination (see Figure 1). Each of the other cognitive strategies was then substituted into the model, with their respective items as indicators. Factor loadings for the other ten strategies ranged from .45 (Acceptance) to .88 (Refocus on Planning). Because of this low loading, the third item on the Acceptance scale was removed for the structural model analyses. Therefore, the lowest loading that remained in the analyses was .62 (Positive Refocusing).

Fit indices were examined to assess the extent to which the measurement models were represented in the data. Chi-square statistics are not reported, as alternative fit indices are preferred for large sample sizes (Byrne, 2010). The incremental fit index (IFI), comparative fit index (CFI), nonnormed fit index (NNFI), standardized root-mean-square residual (SRMR), and root-mean-square error of approximation (RMSEA) for each model are reported in Table 7. It is generally agreed upon that IFI, CFI, and NNFI values above .95 indicate strong model fit (Byrne, 2010). For the SRMR and RMSEA, Hu and Bentler's (1999) frequently cited recommendation is that values below .08 indicate good model fit. For the proposed measurement model, each index indicated

strong model fit (see Table 7), which allows for subsequent evaluation of the structural model. As described above, one low-loading item on the Acceptance scale was noted and removed from the model. The resulting improvement in fit indices between the measurement and structural models for this scale can be seen in Table 7.

Structural model. The structural model was designed to examine: (1) the overall model fit of the proposed relationships (2) the direct effects of sex and each cognitive emotion regulation strategy on depression, (3) the indirect effect of sex on emotion regulation through conformity to gender role norms, and (4) the indirect effect of sex on depression through both conformity to gender role norms and cognitive emotion regulation strategies. Direct and indirect (mediator) effects were estimated in order to compare these relationships (see Tables 8-18). It is important to note that while the arrows imply directionality in the depictions of these analyses, cross-sectional data cannot be used to infer causal relationships (Weston & Gore, 2006). In addition, the error terms associated with the latent constructs of conformity to masculine norms and conformity to feminine norms were covaried, which indicates that the portions of variability in these factors that are not explained by sex are expected to be correlated As with the measurement model, fit indices were examined to assess the extent to which the model was represented in the data. All values are within recommended ranges of above .95 for the IFI, CFI, and NNFI (Byrne, 2010) and below .08 for the SRMR and RMSEA (Hu & Bentler, 1999) (see Table 7), providing evidence that the models were a good fit to the data. See Tables 8-18 for squared multiple correlations of criterion variables, as well as direct and indirect effects. See Figures 2-12 for diagrams of full structural models.

Direct effects. Analysis of direct effects in the model indicated that sex did significantly predict levels of rumination (RSQ), with a positive relationship indicating that women endorsed higher levels of rumination than men (see Table 8). This finding is consistent with the results of the previous regression analyses. Neither conformity to masculine nor feminine gender role norms were significant direct predictors of rumination. However, regarding the prediction of levels of depression, the direct effects of sex and rumination on depression were both significant. Specifically, a negative direct effect from sex to depression indicated that women reported lower levels of depression than men. Also, levels of rumination positively predicted levels of depression. It is important to note that although the statistical relationship between sex and depression is significant, the standardized direct effect was quite small (-.06) and any conceptual implications should therefore be interpreted with caution.

The direct effect between sex and distraction was not significant in the structural model (see Table 9). This finding is not consistent with the regression findings regarding the significance of the relationship, though the regressions did show that the relationship between sex and distraction was small. Conformity to masculine norms and to feminine norms were significant direct predictors of distraction, with positive relationships indicating that both were associated with higher levels of distraction. The direct effect between sex and depression was not significant, which is consistent with the regression analyses but not with the previous structural model for rumination. However, similarly to above, this relationship was small in the rumination model. Finally, the relationship between distraction and depression was significant and positive, indicating that higher

levels of distraction were associated with higher levels of depression. This finding is consistent with that of the regression analyses.

Regarding the additional nine strategies that comprised the CERQ, there were significant direct effects between sex and acceptance, with a negative relationship indicating that men endorsed higher levels of acceptance than women (see Table 11). No other significant sex differences were found in the use of these strategies. In addition, the direct relationship between sex and depression was not significant in any of the CERQ models (see Tables 10-18), which is consistent with all of the previous analyses except for the structural model for rumination (RSQ).

The relationships between conformity to gender role norms and CERQ subscales had not been previously examined because of the unexpected regression finding that there were not significant sex differences in clinical outcomes. A number of these relationships were significant in the structural model analyses (see Tables 10-18). Significant direct effects indicating positive relationships were found between conformity to masculine norms and self-blame, positive refocusing, refocus on planning, positive reappraisal, catastrophizing, and other-blame. Significant direct effects indicating positive relationships were also found between conformity to feminine norms and acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective.

In addition to the above findings that rumination and distraction were associated with levels of depression, a number of the direct effects between CERQ strategies and depression were also significant (see Tables 10-18). Strategies that had significant,

positive relationships with levels of depression in the structural models included self-blame, acceptance, rumination, catastrophizing, and other-blame. Those that had significant, negative relationships with depression included refocus on planning, positive reappraisal, and putting into perspective. These results provide important supplemental information to the regression findings that self-blame was the only CERQ strategy to significantly predict levels of depression.

Indirect effects. In addition to direct effects, analysis of indirect effects was conducted in order to determine the roles of conformity to gender role norms and cognitive emotion regulation strategies as mediators. Bootstrapping was conducted in AMOS on 2,000 generated samples in order to obtain confidence intervals for the indirect effects. Bootstrapping has been identified as a powerful procedure to test the significance of these effects (Mallinckrodt, Abraham, Wei, & Russell, 2006). Indirect effects and confidence intervals are presented in Tables 8-18.

The indirect effect of sex on rumination, through conformity to masculine and feminine norms was not significant (see Table 8). In comparing the indirect effect to the direct effects, the direction of the relationship actually changed and the significance disappeared. Given the strong direct relationships between sex and conformity to gender role norms and the lack of relationship between gender role norms and rumination, this is further evidence of the suppressor effect identified in the regression analyses. It can be concluded that this data does not support the hypothesis that conformity to gender role norms mediates sex differences in rumination. Rather, its strong relationship with sex is

the most statistically and conceptually significant component of this portion of the structural model.

The indirect effects of sex on some of the other strategies, through conformity to masculine and feminine norms, were significant. The indirect effect from sex to acceptance was significant and positive. As described above, the direct effect from sex to acceptance was found to be significant and negative. Again, one can see in the variable means (Tables 2 and 3) that men endorsed higher levels of acceptance than women, which is consistent with the direct effect that was found. This change in sign may be a product of the significant positive relationship between conformity to feminine norms and acceptance. Significant indirect effects were also found for a number of other strategies, including positive refocusing, refocus on planning, positive reappraisal, putting into perspective, and other-blame. In each of these models, direct sex differences in the use of the strategies were not found and significant direct relationships between conformity to one or both sets of gender role norms and the strategies were found. Overall, these findings indicate that conformity to gender role norms was a more statistically significant predictor than sex of the use of most cognitive emotion regulation strategies.

The overall indirect effect from sex to depression, through both conformity to gender role norms and rumination, was statistically significant (see Table 8). Importantly, the indirect effect was significant and positive, which is the opposite direction of the direct effect. Examination of women's and men's mean depression scores reveals that men reported slightly higher levels depression than women with no appreciable statistical

difference (a difference in means of .04, see Tables 2 and 3), meaning that this relationship is indeed negative (as seen in the direct effect), as well as very small. Therefore, the significant indirect effect appears to be evidence of rumination functioning as another suppressor variable rather than a mediating variable. In other words, the significance of the indirect effect is a product of the strong direct relationship between rumination and depression, rather than an indication that rumination is explaining a significant relationship between sex and depression. For distraction and all CERQ subscales, no significant indirect effects were found between sex and depression (see Tables 9-18).

Chapter 5: Discussion

Review of Results

Hypothesis 1. Support was found for the first general hypothesis that cognitive emotion regulation strategies would predict levels of depression and anxiety. This finding is congruent with the basic premise of both Lazarus and Folkman's (1984) model of coping as well as Nolen-Hoeksema's (1993) response styles theory. It also supports more specific arguments in the literature that the ways in which one responds to stressful life events are primary contributors to mental health outcomes (e.g., Garnefski & Kraaij, 2006; Suveg et al., 2010). The findings that self-blame and rumination were associated with higher levels of both depression and anxiety extend prior research that had identified positive associations between self-blame and depression (Garnefski & Kraaij, 2006) and rumination and depression (e.g., Nolen-Hoeksema, Wisco, & Lyubormirsky, 2008) by highlighting that these strategies are also associated with anxiety.

Recent research had not addressed the relationship between distraction specifically and mental health outcomes, making the finding that distraction was also associated with higher levels of both depression and anxiety an important addition to the literature. In that distraction could be seen as the other end of a conceptual continuum from rumination, as discussed in Nolen-Hoeksema's (1987) early work, it is somewhat surprising that both strategies are linked to higher levels of depression. However, one prior study also reported a positive correlation between distraction and depression (Schmaling, Dimidjian, Katon, & Sullivan, 2002). In addition, research has shown that avoidant emotion regulation strategies, such as suppression, are associated with increased

depression and anxiety over time (Gross & Thompson, 2007; Rassin & Diepstraten, 2003; Rude & McCarthy, 2003). The current findings provide evidence that distraction may function similarly to these other avoidant strategies that have been used more frequently in the research to date.

Although none of the emotion regulation strategies included in the current study were found to be associated with lower levels of depression, this study's findings that acceptance and refocus on planning were associated with lower anxiety are generally consistent with prior research. Specifically, acceptance has been negatively associated with anxiety in past studies (Gratz & Roemer, 2004; Heffner et al., 2003). However, this is contrary to Aldao and colleagues' (2010) finding that acceptance was not significantly associated with anxiety and due to these continually mixed findings, suggests that this relationship warrants further exploration. In addition, to the extent that refocusing on planning can conceptually be seen as a form of problem-solving, the current finding that it is associated with lower levels of anxiety is in line with Chang, Downey, and Salata's (2004) finding that problem-solving is associated with low anxiety.

Hypothesis 2. Regarding sex differences in use of cognitive emotion regulation strategies, the finding that women in the current study were more likely than men to employ rumination is consistent with prior research (Garnefski et al., 2004; Grant et al., 2004; Nolen-Hoeksema & Larson, 1999; Nolen-Hoeksema et al., 1993, 1999; Ziegert & Kistner, 2002; Zlomke & Hahn, 2010). Women were also found to be more likely than men to employ distraction in response to negative emotional experience. Although sex differences in distraction have not been explicitly examined in recent research, this is

somewhat inconsistent with prior findings that men were more likely than women to use avoidant strategies such as suppression (Gross & Oliver, 2003) and that adolescent boys and girls believed it was more appropriate for boys than girls to employ distraction (Broderick & Korteland, 2002).

It is important to note that, although statistically significant, the sex differences found in tendencies to employ rumination and distraction were small. Further, sex differences were not found for any of the other cognitive emotion regulation strategies. This is contrary to prior research that provided evidence for sex differences in the use of putting into perspective and other-blame (Zlomke & Hahn, 2010), as well as catastrophizing and positive refocusing (Garnefski et al., 2004). This overall finding that sex differences were not found for the majority of emotion regulation strategies and were small when present at all is in itself an important contribution to the literature. In fact, the lack of significant findings is consistent with Hyde's (2005) assertion that the sex differences literature in general tends to focus on small differences between men and women rather than the relatively large within-group variability that is present. Her gender similarities hypothesis further argues that women and men are in fact similar on most psychological variables, and that statements to the contrary risk overgeneralization and carry social costs (Hyde, 2005). The lack of significant sex differences in the current study suggests that simply identifying as female or male does not play an important role in the extent to which individuals employ particular emotion regulation strategies and that the focus should continue to shift to meaningful aspects of within-group variability.

Hypothesis 3. The purpose of the third hypothesis, that cognitive emotion regulation would mediate sex differences in depression and anxiety, was to test Nolen-Hoeksema's response styles theory that differential responses to negative experience may explain sex differences in depression and anxiety. However, although epidemiological studies continue to provide evidence that women report higher levels of depression and anxiety than men (CDC, 2006), the current study's findings do not support this difference. Although women were found to be more likely to employ rumination than men, the regression analyses found no significant sex differences in levels of depression or anxiety. Therefore, there was no relationship for which cognitive emotion regulation strategies could be examined as mediators. This is contrary to prior research that found rumination to be a significant mediator of the relationship between sex and depression (Grant et al., 2004; Hilt et al., 2010; Nolen-Hoeksema et al., 1999; Nolen-Hoeksema et al., 1994). The current findings are again consistent, however, with Hyde's (2005) gender similarities hypothesis because they indicate that, in this sample, women and men actually do not report appreciably different levels of depression and anxiety. Thus, although Nolen-Hoeksema's focus on rumination appears to represent an accurate reflection of its predictive power in relation to mental health, this study does not support the utility of response styles theory in explaining the sex differences in depression that have been identified by epidemiological studies.

Hypothesis 4. For the fourth hypothesis, it was expected that conformity to gender role norms would function as a meaningful variable to at least partially explain sex differences in the use cognitive emotion regulation strategies. Although women were

found to both ruminate and distract more than men, conformity to masculine or feminine gender role norms did not play a significant role in this relationship. In fact, the inclusion of gender role strengthened the statistical relationship between sex and rumination because of its strong association with being female or male. The intention of the current study was to discuss meaningful within-group predictors of sex differences (i.e., conformity to gender role norms). However, the limited significant findings reviewed above suggest that the sex differences in emotion regulation themselves may not be as integral as was expected in explaining differential rates of depression and anxiety in women and men. It also appears that conformity to gender role norms may not be a useful replacement for sex in explaining potential within-group differences in cognitive emotion regulation.

Full models. Generally, the results of the initial structural equation model, for Nolen-Hoeksema's measure of rumination, were consistent with the regression findings. The strongest relationship in the structural equation model was, by far, the direct effect from rumination to depression, which reinforces the regression finding that higher levels of rumination predicted higher levels of depression. This also supports the premise in the literature that emotion regulation, and rumination in particular, plays an important role in levels of depression (e.g., Aldao et al., 2010; Nolen-Hoeksema, 1993; Nolen-Hoeksema et al., 2008).

The results of the other structural models also included a number of significant relationships between cognitive emotion regulation strategies and depression. The findings that distraction, self-blame, and rumination (from the CERQ in addition to the

RSQ) were positively associated with depression are consistent with the results of the first regression hypothesis and prior research reviewed above. The finding that acceptance was positive associated with depression in the structural model, combined with the regression finding that it was negatively associated with anxiety, supports prior research indicating mixed relationships between acceptance and clinical outcomes (Aldao et al., 2010). In addition, other-blame's positive relationship with depression in the structural model complements the regression finding that it was associated with higher anxiety. It appears as though directing blame, whether toward oneself or others, is associated with negative outcomes for one's own mental health.

The fact that refocus on planning, positive reappraisal, and putting into perspective were found in the structural models to be negatively associated with depression comprises an important addition to the regression results. Conceptually, these strategies represent active cognitive attempts to problem-solve (refocus on planning) or to reframe emotional experience that was likely experienced as unpleasant into one that includes more positive context (positive reappraisal, putting into perspective). This is consistent with prior research that problem-solving and reappraisal are associated with positive mental health outcomes (Chang, D'Zurilla, & Sanna, 2009; Gross & Oliver, 2003; Klein et al., 2011).

In addition, the first structural equation model results support the regression finding that although there is a small, but significant positive relationship between sex and rumination, conformity to gender role norms (masculine or feminine) was not a significant predictor of rumination. This, combined with the evidence that gender role

functioned as a suppressor variable because of its strong relationship with sex, indicates again that there does not appear to be a mediated effect from sex to rumination through conformity to gender role norms.

However, the structural models provided evidence of a number of significant relationships between conformity to gender role norms and other strategies. In fact, for all of the strategies other than the initial model of rumination, significant relationships were found between conformity to either one or both sets of norms and cognitive strategies. Therefore, although they may not function as mediators of sex differences in cognitive emotion regulation as predicted, the construct of conformity to gender role norms does appear to play a role in one's tendency to rely on certain strategies.

In addition to the set of strategies that were positively associated with both masculine and feminine norms (distraction, positive refocusing, refocus on planning, positive reappraisal), the strategies that were associated with higher conformity to either masculine or feminine norms are of particular interest. Specifically, there were direct relationships between conformity to masculine norms and self-blame, other-blame, and catastrophizing, three strategies that were associated in this study with higher levels of depression. The significant relationships between conformity to feminine norms and have more mixed implications in terms of mental health outcomes. Conformity to feminine norms was positively associated with the second measure of rumination, which predicted higher levels of depression. However, feminine norms were also associated with acceptance, which was linked to higher depression and lower anxiety, and to putting into perspective, which was associated with lower levels of depression.

Regarding sex differences in depression, the finding that the overall indirect relationship from sex to depression through both conformity to gender role norms and rumination was significant in the first structural model again primarily reflects the relatively strong positive relationship between rumination and depression. In this way, the structural equation model's findings that both the direct and indirect effects from sex to depression were statistically significant in this first model are somewhat misleading. This is supported by the structural models for each of the other strategies, which do not include significant direct or indirect effects between sex and depression. Ultimately, as was found in the regression analyses for prior hypotheses, women and men in this sample did not report different levels of depression, leaving no significant sex differences to explain.

Implications

First, the finding that certain cognitive emotion regulation strategies were associated with levels of depression and anxiety has important implications for clinical work. Refocus on planning, positive reappraisal, and putting into perspective were identified as adaptive strategies, in that they were negatively associated with clinical symptoms. The negative relationship between refocus on planning and anxiety supports that theories that include a focus on active strategizing and problem-solving in the face of stress, such as Cognitive Behavioral Therapy (CBT; Beck, 1976), are likely to be particularly useful in the treatment of individuals struggling with anxiety. The negative relationships found between refocus on planning, positive reappraisal, and putting into

perspective and depression also support this premise of CBT and related treatment orientations.

Second, the strategies identified as maladaptive also have important clinical implications. Rumination and distraction were each associated with both depression and anxiety. These results suggest that both focusing intently on one's distress and attempting to ignore it can be problematic. Clinicians may find it helpful to assist clients in finding a balance in the extent to which they focus on their distress. Self-blame and other-blame were also positively associated with both depression and anxiety. Taken together, these results suggest that placing blame as a strategy to manage emotion, whether it is directed toward oneself or toward others, is likely not useful in alleviating negative emotional experience. Finally, catastrophizing was positively associated with depression, which can be interpreted in the context of the above findings in that it is conceptually counter to strategies like positive reappraisal and putting into perspective. Overall, it is also important to note, however, that the utility of defining particular strategies as singularly adaptive or maladaptive has its own limitations. For example, in this study acceptance was found to be negatively associated with symptoms of anxiety, but positively associated with symptoms of depression. Although the relationship between emotion regulation and clinical outcomes is very important to understand, it is likely that the extent to which a particular strategy contributes to positive mental health depends at least in part on circumstances and context.

Third, the repeated findings that sex differences in cognitive emotion regulation strategies and depression were either statistically insignificant, or when they were

significant, very small in magnitude, have important conceptual implications. Although they did not support the hypotheses of the current study, they do support Hyde's (2005) gender similarities hypothesis. In other words, these findings suggest that it may be more important to continue to explore meaningful components of gender rather than differences associated with biological sex.

However, the current study did explore the role of gender role socialization, in the form of conformity to masculine and feminine norms, as one of these components. Although conformity to gender role norms was not found to be significantly related to Nolen-Hoeksema's measure of rumination, as hypothesized, a number of significant relationships were found between conformity to gender role norms and other strategies. In other words, consistent with the purpose and hypotheses of this study, gender role was found to be a more useful construct in predicting the use of emotion regulation strategies than sex. These results overall provide strong support for the notion that it is more important to explore meaningful components of gender rather than focusing solely on sex differences.

Limitations

One limitation of the current study is that its cross-sectional design precluded examination of the directionality of the relationship between cognitive emotion regulation strategies and clinical symptoms. Intuitively, it is quite possible that the extent to which people feel depressed or anxious influences the extent to which they rely on particular cognitive emotion regulation strategies. Depressed mood, for example, may increase the likelihood of focusing on negative emotion. It is also possible that the relationship is

bidirectional and that constructs such as rumination and depression may influence one another in a more cyclical than linear pattern. Although early longitudinal work on response styles theory supported the hypothesis that rumination predicted depression (e.g., Nolen-Hoeksema et al., 1994), more current studies are needed to replicate these findings and to examine the direction of the relationships among other strategies and clinical outcomes.

In addition, the current design relied on participant self-report rather than clinical diagnosis. This methodology is common in psychological research, but it may limit the validity of the findings, particularly for variables and measures such as depression and anxiety. Further, the finding that women and men did not report different levels of depression and anxiety conflicts with epidemiological studies. The above discussion posits that these sex differences may indeed not exist, or at least seem to be small. However, it is also possible that there is an important distinction to be made between reporting symptoms of depression and being professionally diagnosed with depression. For example, research has shown that women are more likely than men to be diagnosed with depression, while men are more likely than women to be diagnosed with substance abuse disorders (Eaton et al., 2012).

There are also limitations in the design of the structural equation model. First, it included only single measures of each construct. Although parceling and using single items as indicators allowed for the examination of latent constructs, it is preferable to have multiple measures of each construct. Second, the reliability estimates were low for the measures of conformity to gender role norms. The inclusion of multiple measures

would have also been helpful in addressing this limitation. Third, although the fit was quite good for the structural models, many of the parameters were not statistically significant, meaning that the hypothesized relationships among the included constructs were not the most meaningful explanation of the data (Weston & Gore, 2006).

Future Research

Based on the study findings and the limitations outlined above, a number of future research directions are suggested. First, a longitudinal examination of the relationships among a variety of emotion regulation strategies and clinical outcomes is critical to understanding the directionality of the relationship. Longitudinal research could also examine the extent to which interventions focused on cognitive emotion regulation may help to decrease levels of depression and anxiety over time. Further, longitudinal studies could shed light on the mechanisms by which individuals develop tendencies to rely on particular emotion regulation strategies over others. Information about the extent to which these tendencies are socialized, and how these messages are transmitted, would represent an important contribution to the literature.

Second, there is additional work to be done in using structural equation modeling to examine response styles theory. Most importantly, future research should explore a structural equation model with more comprehensive representation of the included constructs. For example, a model could be designed that includes multiple indicators of gender role, instead of only conformity to gender role norms. In addition, it may be more useful to use structural equation modeling to conduct multi-group analyses to examine sex differences in the hypothesized relationships, rather than using sex as an exogenous

predictor. This type of analysis could provide additional information about the process by which sex differences might arise.

Finally, the results of this study suggest that it might be indicated for future research to altogether forego the examination of differences based on biological sex. Prior findings that women report higher levels of depression and anxiety than men may be due to other factors, such as willingness to endorse clinical symptoms or help-seeking behavior or clinicians' tendencies to diagnose women with affective disorders and men with substance-related disorders. However, it remains important to understand how meaningful components of gender, including conformity to gender role norms, may be related to constructs such as cognitive emotion regulation, depression, and anxiety. Although the current study's findings related to gender role were mixed, the extent to which one conforms to gender role norms is distinct, for example, from the rigidity with which one conforms, and the latter could prove to be more influential on clinical outcomes than the former. In short, future research should continue to explore this and related constructs in order to further understand the relationships between various aspects of gender and clinical outcomes.

Summary and Conclusions

This study highlights the complexities of examining the role of gender in psychological experience. The purpose was to speak in a meaningful way about why it might be that sex differences in constructs such as emotion regulation, depression, and anxiety have been found in prior epidemiological and empirical studies. Results of the current study indicated minimal sex differences in these variables, prompting the

suggestion for future research that the focus continue to move from sex to more meaningful components of gender and gender identity.

The finding that certain cognitive emotion regulation strategies are related to symptoms of psychopathology complements prior research and has important clinical implications, as described above. Not only rumination, but distraction, self-blame, acceptance, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame were all predictive of levels of depression and/or anxiety. Though additional research is needed on how gender may or may not play a role in these relationships, these findings support the notion that the way in which individuals manage and regulate emotion is central to mental health.

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Table 1

Alphas, Means, Standard Deviations, and Intercorrelations of Variables

Variables	α	*M*	*SD*	1	2	3	4a	4b	4c	4d	4e
1. Sex				_							
2. CMNI-22	.70	28.17	6.67	-.32**	_						
3. CFNI-16	.66	29.25	5.52	.43**	-.38**	_					
4. CERQ											
a. Self-Blame	.83	10.70	3.60	-.01	.08*	.00	_				
b. Acceptance	.76	11.97	3.41	-.04	.03	.07	.56**	_			
c. Rumination	.81	11.64	3.93	.06	-.04	.12**	.60**	.50**	_		
d. Positive Refocusing	.83	9.73	3.62	.04	.05	.13**	.06	.22**	.15**	_	
e. Refocus on Planning	.80	12.57	3.69	.00	.08*	.13**	.13**	.31**	.27**	.55**	_
f. Positive Reappraisal	.88	12.57	4.13	.06	.01	.19**	.06	.31**	.15**	.55**	.77**
g. Putting Into Perspective	.84	12.00	3.82	.03	-.02	.14**	.13**	.35**	.16**	.46**	.59**
h. Catastrophizing	.80	9.02	3.66	-.01	.13**	-.03	.48**	.34**	.55**	.10**	.03
i. Other-Blame	.83	8.24	3.04	-.05	.16**	-.10**	.20**	.21**	.39**	.15**	.12**
5. RSQ Rumination	.95	48.01	14.91	.08*	.02	.02	.53**	.37**	.67**	.02	.01
6. CAQ Distraction	.92	13.95	5.20	.07*	.12**	.10**	.28**	.22**	.29**	.23**	.06
7. Depression	.93	11.96	10.72	-.00	.06	-.09*	.46**	.27**	.43**	-.07	-.15**
8. Anxiety	.84	8.14	8.16	.04	.06	-.04	.38**	.18**	.38**	.06	-.07*

Note. $N = 754$.
* = $p < .05$, ** = $p < .01$

Table 1 (Continued)

Alphas, Means, Standard Deviations, and Intercorrelations of Variables

Variables	4f	4g	4h	4i	5	6	7
1. Sex							
2. CMNI							
3. CFNI							
4. CERQ							
a. Self-Blame							
b. Acceptance							
c. Rumination							
d. Positive Refocusing							
e. Refocus on Planning							
f. Positive Reappraisal	_						
g. Putting Into Perspective	.72**	_					
h. Catastrophizing	-.12**	-.01	_				
i. Other-Blame	.05	.12**	.55**	_			
5. RSQ Rumination	-.07*	.03	.56**	.34**	_		
6. CAQ Distraction	.03	.07	.27**	.08*	.40**	_	
7. Depression	-.23**	-.13**	.47**	.25**	.66**	.32**	_
8. Anxiety	-.10**	-.05	.43**	.30**	.47**	.31**	.68**

Note. $N = 754$.
* = $p < .05$, ** = $p < .01$

Table 2

Women's Alphas, Means, Standard Deviations, and Intercorrelations of Variables

Variables	α	*M*	*SD*	1	2	3a	3b	3c	3d	3e	3f
1. CMNI-22	.61	26.25	5.80	_							
2. CFNI-16	.65	31.40	5.29	-.25**	_						
3. CERQ											
a. Self-Blame	.82	10.66	3.57	.07	.02	_					
b. Acceptance	.74	11.85	3.37	.04	.14**	.52**	_				
c. Rumination	.79	11.85	3.86	.00	.09	.62**	.48**	_			
d. Positive Refocusing	.83	9.86	3.64	.05	.16**	-.05	.14**	.06	_		
e. Refocus on Planning	.79	12.59	3.74	.08	.14**	.03	.26**	.23**	.54**	_	
f. Positive Reappraisal	.88	12.77	4.27	.06	.19**	-.03	.26**	.07	.56**	.77**	_
g. Putting Into Perspective	.83	12.10	3.86	.02	.13**	.09	.29**	.12*	.46**	.61**	.74**
h. Catastrophizing	.81	9.00	3.70	.14**	-.05	.48**	.36**	.51**	.04	.02	-.15**
i. Other-Blame	.81	8.10	2.88	.16**	-.12*	.23**	.21**	.41**	.07	.10*	.04
4. RSQ Rumination	.95	49.02	14.63	.05	-.01	.49**	.36**	.65**	-.07	-.03	-.14**
5. CAQ Distraction	.92	14.29	5.18	.05	.12*	.21**	.19**	.22**	.21**	.06	.03
6. Depression	.92	11.94	10.66	.04	-.07	.42**	.24**	.44**	-.12*	-.18**	-.28**
7. Anxiety	.82	8.34	8.10	.09	-.04	.35**	.17**	.34**	.01	-.10*	-.14**

Note. $N = 416$.
* = $p < .05$, ** = $p < .01$

Table 2 (Continued)

Women's Means, Standard Deviations, and Intercorrelations of Variables

Variables	3g	3h	3i	4	5	6
1. CMNI						
2. CFNI						
3. CERQ						
a. Self-Blame						
b. Acceptance						
c. Rumination						
d. Positive Refocusing						
e. Refocus on Planning						
f. Positive Reappraisal						
g. Putting Into Perspective	_					
h. Catastrophizing	-.06	_				
i. Other-Blame	.07	.55**	_			
4. RSQ Rumination	-.02	.51**	.33**	_		
5. CAQ Distraction	.09	.21**	.02	.36**	_	
6. Depression	-.17**	.48**	.26**	.67**	.24**	_
7. Anxiety	-.08	.42**	.30**	.56**	.30**	.68**

Note. $N = 416$.
* = $p < .05$, ** = $p < .01$

Table 3

Men's Alphas, Means, Standard Deviations, and Intercorrelations of Variables

Variables	α	*M*	*SD*	1	2	3a	3b	3c	3d	3e	3f
1. CMNI	.71	30.55	6.87	_							
2. CFNI	.54	26.63	4.56	-.34**	_						
3. CERQ											
a. Self-Blame	.83	10.75	3.65	.08	-.00	_					
b. Acceptance	.79	12.12	3.43	.00	.04	.62**	_				
c. Rumination	.83	11.39	3.98	-.05	.11*	.59**	.54**	_			
d. Positive Refocusing	.84	9.55	3.58	.09	.08	.20**	.32**	.27**	_		
e. Refocus on Planning	.82	12.55	3.63	.08	.15**	.25**	.38**	.31**	.56**	_	
f. Positive Reappraisal	.88	12.30	3.94	-.02	.19**	.17**	.39**	.25**	.54**	.78**	_
g. Putting Into Perspective	.85	11.89	3.77	-.03	.15**	.19**	.42**	.21**	.45**	.57**	.70**
h. Catastrophizing	.79	9.06	3.62	.12*	.00	.49**	.31**	.59**	.19**	.05	-.07
i. Other-Blame	.84	8.44	3.20	.14**	-.04	.16**	.21**	.37**	.25**	.16**	.08
4. RSQ Rumination	.95	46.75	15.15	.05	-.02	.58**	.38**	.69**	.12*	.05	.00
5. CAQ Distraction	.92	13.52	5.18	.27**	.01	.37**	.26**	.36**	.24**	.07	.01
6. Depression	.93	11.98	10.80	.09	-.15**	.49**	.30**	.42**	.00	-.13*	-.17**
7. Anxiety	.85	7.90	8.26	.06	-.08	.43**	.20**	.42**	.12*	-.04	-.04

Note. $N = 338$.
* = $p < .05$, ** = $p < .01$

Table 3 (Continued)

Men's Means, Standard Deviations, and Intercorrelations of Variables

Variables	3g	3h	3i	4	5	6
1. CMNI						
2. CFNI						
3. CERQ						
a. Self-Blame						
b. Acceptance						
c. Rumination						
d. Positive Refocusing						
e. Refocus on Planning						
f. Positive Reappraisal						
g. Putting Into Perspective	_					
h. Catastrophizing	.05	_				
i. Other-Blame	.18**	.55**	_			
4. RSQ Rumination	.07	.64**	.37**	_		
5. CAQ Distraction	.04	.35**	.16**	.43**	_	
6. Depression	-.09	.45**	.23**	.65**	.41**	_
7. Anxiety	-.01	.44**	.31**	.58**	.32**	.69**

Note. $N = 338$.
* = $p < .05$, ** = $p < .01$

Table 4

Regression Information for Significant Relationships Among Emotion Regulation Scores, Depression, and Anxiety

Criterion	Predictor	*B*	*SE B*	$\beta_{original}$	*t*
Depression	Self-Blame	.46	.11	.16**	4.13
	RSQ Rumination	.37	.03	.50**	12.21
	Distraction	.16	.06	.07*	2.47
Anxiety	Self-Blame	.05	.01	.12**	3.83
	Acceptance	-.04	.01	-.10**	-3.05
	Refocus on Planning	-.04	.02	-.14*	-2.35
	Other-Blame	.31	.08	.13**	3.79
	RSQ Rumination	.03	.00	.44**	9.66
	Distraction	.02	.01	.09**	3.34

Note. $N = 754$. $\beta_{original} = \beta$ value from original data. All other values, including significance levels, reported from pooled data.
* = $p < .05$, ** = $p < .01$.

Table 5

Regression Information for Significant Sex Differences in Emotion Regulation Scores

Criterion	Predictor	*B*	*SE B*	$\beta_{original}$	*t*
RSQ Rumination	Sex	2.78	1.06	.09*	2.61
Distraction	Sex	0.79	0.38	.08*	2.08

Note. $N = 754$. $\beta_{original}$ = β value from original data. All other values, including significance levels, reported from pooled data.
* = $p < .05$, ** = $p < .01$.

Table 6

Regression Information for Analysis of Gender Role as Mediator of Sex Differences in Emotion Regulation Scores

Criterion	Predictor	Model 1				Model 2			
		B	*SE B*	$\beta_{original}$	*t*	*B*	*SE B*	$\beta_{original}$	*t*
RSQ Rumination	Sex	2.67	1.11	.09*	2.41	3.50	1.27	.11**	2.77
	CMNI					0.15	0.09	.04	1.65
	CFNI					-0.03	0.12	-.02	-.24
Distraction	Sex	0.81	0.39	.06*	2.06	1.07	0.44	.09*	2.42
	CMNI					0.17	0.03	.22**	5.26
	CFNI					0.11	0.04	.11*	2.56

Note. $N = 754$. $\beta_{original} = \beta$ value from original data. All other values, including significance levels, reported from pooled data.
* = $p < .05$, ** = $p < .01$.

Table 7

Fit Indices for Measurement and Structural Models

	IFI	CFI	NNFI	SRMR	RMSEA [90% CI]
Measurement Model: RSQ Rumination	.98	.98	.97	.04	.026 [.024, .027]
Structural Model: RSQ Rumination	.98	.98	.97	.05	.058 [.049, .066]
Measurement Model: CAQ Distraction	.97	.97	.96	.04	.059 [.051, .066]
Structural Model: CAQ Distraction	.97	.97	.96	.04	.059 [.052, .066]
Measurement Model: Self-Blame	.97	.97	.96	.04	.051 [.043, .060]
Structural Model: Self-Blame	.97	.97	.96	.05	.052 [.044, .060]
Measurement Model: Acceptance	.94	.94	.92	.07	.074 [.066, .082]
Structural Model: Acceptance	.97	.97	.96	.05	.054 [.045, .062]
Measurement Model: Rumination	.95	.95	.94	.06	.066 [.058, .074]
Structural Model: Rumination	.95	.95	.94	.06	.067 [.059, .075]
Measurement Model: Positive Refocusing	.97	.97	.96	.05	.054 [.046, .062]
Structural Model: Positive Refocusing	.97	.97	.96	.05	.054 [.046, .062]
Measurement Model: Refocus on Planning	.97	.97	.95	.05	.055 [.047, .063]
Structural Model: Refocus on Planning	.97	.96	.95	.05	.055 [.047, .063]
Measurement Model: Positive Reappraisal	.97	.97	.96	.04	.052 [.044, .061]
Structural Model: Positive Reappraisal	.97	.97	.96	.04	.052 [.044, .060]
Measurement Model: Putting Into Perspective	.98	.98	.97	.04	.042 [.033, .050]
Structural Model: Putting Into Perspective	.98	.98	.97	.04	.042 [.034, .050]
Measurement Model: Catastrophizing	.97	.97	.95	.04	.056 [.048, .064]
Structural Model: Catastrophizing	.97	.97	.96	.05	.056 [.048, .063]
Measurement Model: Other-Blame	.97	.97	.96	.04	.054 [.046, .062]
Structural Model: Other-Blame	.97	.97	.96	.05	.053 [.045, .061]

Note. $N = 754$. Except where noted as RSQ or CAQ, scales are from CERQ. IFI = incremental fit index; CFI = comparative fit index; NNFI = nonnormed fit index; SRMR = standardized root-mean-square residual; RMSEA = root mean-square error of approximation; CI = confidence interval.

Table 8

Structural Model R^2, Direct Effects, and Indirect Effects: RSQ Rumination

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
RSQ Rumination		.01*		
	Sex		.09*	-.01 [-.07, .05] (ns)
	Conformity to Masculine Norms		.05 (ns)	N/A
	Conformity to Feminine Norms		.01 (ns)	N/A
Depression		.48**		
	Sex		-.06*	.06 [.00, .11]*
	Rumination		.70**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 9

Structural Model R^2, Direct Effects, and Indirect Effects: CAQ Distraction

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Distraction		.06**		
	Sex		.05 (ns)	.02 [-.04, .09] (ns)
	Conformity to Masculine Norms		.25**	N/A
	Conformity to Feminine Norms		.20**	N/A
Depression		.12**		
	Sex		-.03 (ns)	.03 [.00, .06] (ns)
	Distraction		.35**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 10

Structural Model R^2, Direct Effects, and Indirect Effects: Self-Blame

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Self-Blame		.01*		
	Sex		.00 (ns)	-.01 [-.08, .06] (ns)
	Conformity to Masculine Norms		.12*	N/A
	Conformity to Feminine Norms		.05 (ns)	N/A
Depression		.26**		
	Sex		.01 (ns)	-.01 [-.05, .03] (ns)
	Self-Blame		.51**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 11

Structural Model R^2, Direct Effects, and Indirect Effects: Acceptance

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Acceptance		.03**		
	Sex		-.14**	.09 [.047, .259]**
	Conformity to Masculine Norms		.09 (ns)	N/A
	Conformity to Feminine Norms		.22**	N/A
Depression		.02**		
	Sex		.01 (ns)	-.01 [-.07, .01] (ns)
	Acceptance		.15**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 12

Structural Model R^2, Direct Effects, and Indirect Effects: Rumination

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Rumination		.01*		
	Sex		-.01 (ns)	.05 [-.01, .11] (ns)
	Conformity to Masculine Norms		.07 (ns)	N/A
	Conformity to Feminine Norms		.14*	N/A
Depression		.28**		
	Sex		-.02 (ns)	.02 [-.02, .06] (ns)
	Rumination		.53**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 13

Structural Model R^2, Direct Effects, and Indirect Effects: Positive Refocusing

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Positive Refocusing		.04**		
	Sex		-.02 (ns)	.07 [.01, .14]*
	Conformity to Masculine Norms		.14*	N/A
	Conformity to Feminine Norms		.23**	N/A
Depression		.01*		
	Sex		.00 (ns)	.00 [-.02, .00] (ns)
	Positive Refocusing		-.08 (ns)	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 14

Structural Model R^2, Direct Effects, and Indirect Effects: Refocus on Planning

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Refocus on Planning		.08**		
	Sex		-.07 (ns)	.08 [.02, .15]*
	Conformity to Masculine Norms		.23**	N/A
	Conformity to Feminine Norms		.31**	N/A
Depression		.03**		
	Sex		.00 (ns)	.00 [-.02, .01] (ns)
	Refocus on Planning		-.18**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 15

Structural Model R^2, Direct Effects, and Indirect Effects: Positive Reappraisal

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Positive Reappraisal		.07**		
	Sex		-.06 (ns)	.12 [.06, .18]**
	Conformity to Masculine Norms		.14*	N/A
	Conformity to Feminine Norms		.33**	N/A
Depression		.07**		
	Sex		.02 (ns)	-.02 [-.04, .00] (ns)
	Positive Reappraisal		-.26**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 16

Structural Model R^2, Direct Effects, and Indirect Effects: Putting Into Perspective

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Putting Into Perspective		.03**		
	Sex		-.06 (ns)	.09 [.03, .15]**
	Conformity to Masculine Norms		.06 (ns)	N/A
	Conformity to Feminine Norms		.22**	N/A
Depression		.02**		
	Sex		.00 (ns)	.00 [-.02, .01] (ns)
	Putting Into Perspective		-.14**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 17

Structural Model R^2, Direct Effects, and Indirect Effects: Catastrophizing

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Catastrophizing		.01**		
	Sex		.05 (ns)	-.05 [-.11, .01] (ns)
	Conformity to Masculine Norms		.12*	N/A
	Conformity to Feminine Norms		-.01 (ns)	N/A
Depression		.31**		
	Sex		.00 (ns)	.00 [-.05, .04] (ns)
	Catastrophizing		.56**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

Table 18

Structural Model R^2, Direct Effects, and Indirect Effects: Other-Blame

Criterion	Predictor	R^2	Direct Effect	Indirect Effect
Other-Blame		.04**		
	Sex		.02 (ns)	-.09 [-.16, -.03]**
	Conformity to Masculine Norms		.19**	N/A
	Conformity to Feminine Norms		-.05 (ns)	N/A
Depression		.08**		
	Sex		.02 (ns)	-.02 [-.05, .00] (ns)
	Other-Blame		.29**	N/A

Note. $N = 754$. Bias-corrected bootstrap 95% confidence intervals are reported for indirect effects. All direct and indirect effects are standardized. Indirect effects are through all mediating variables.
* = $p < .05$, ** = $p < .01$

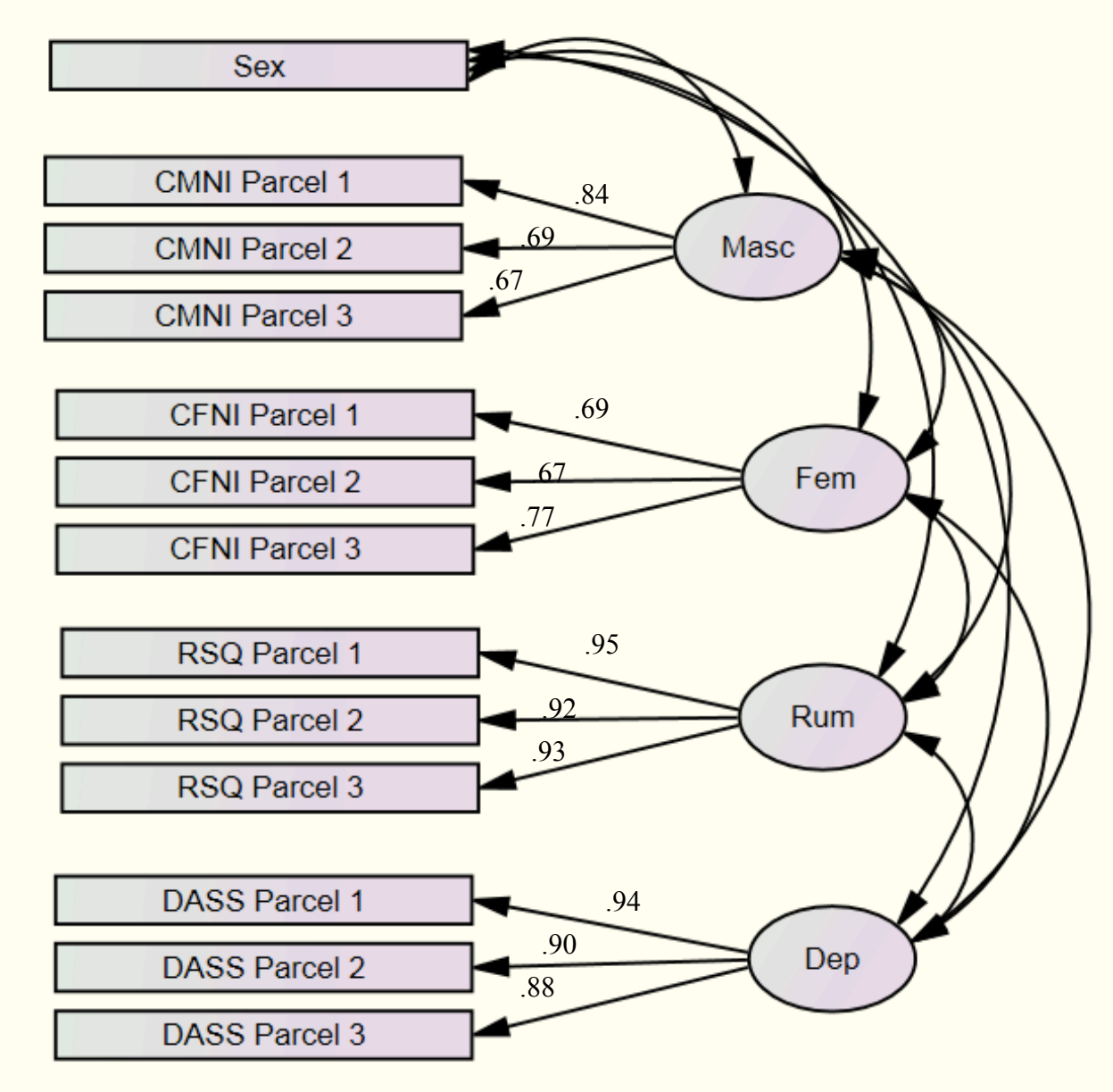

Figure 1. Sample measurement model with parcel factor loadings, for RSQ Rumination model. Error terms for parcels not depicted to preserve space. Masc = conformity to masculine norms; Fem = conformity to feminine norms; Rum = rumination; Dep = depression.

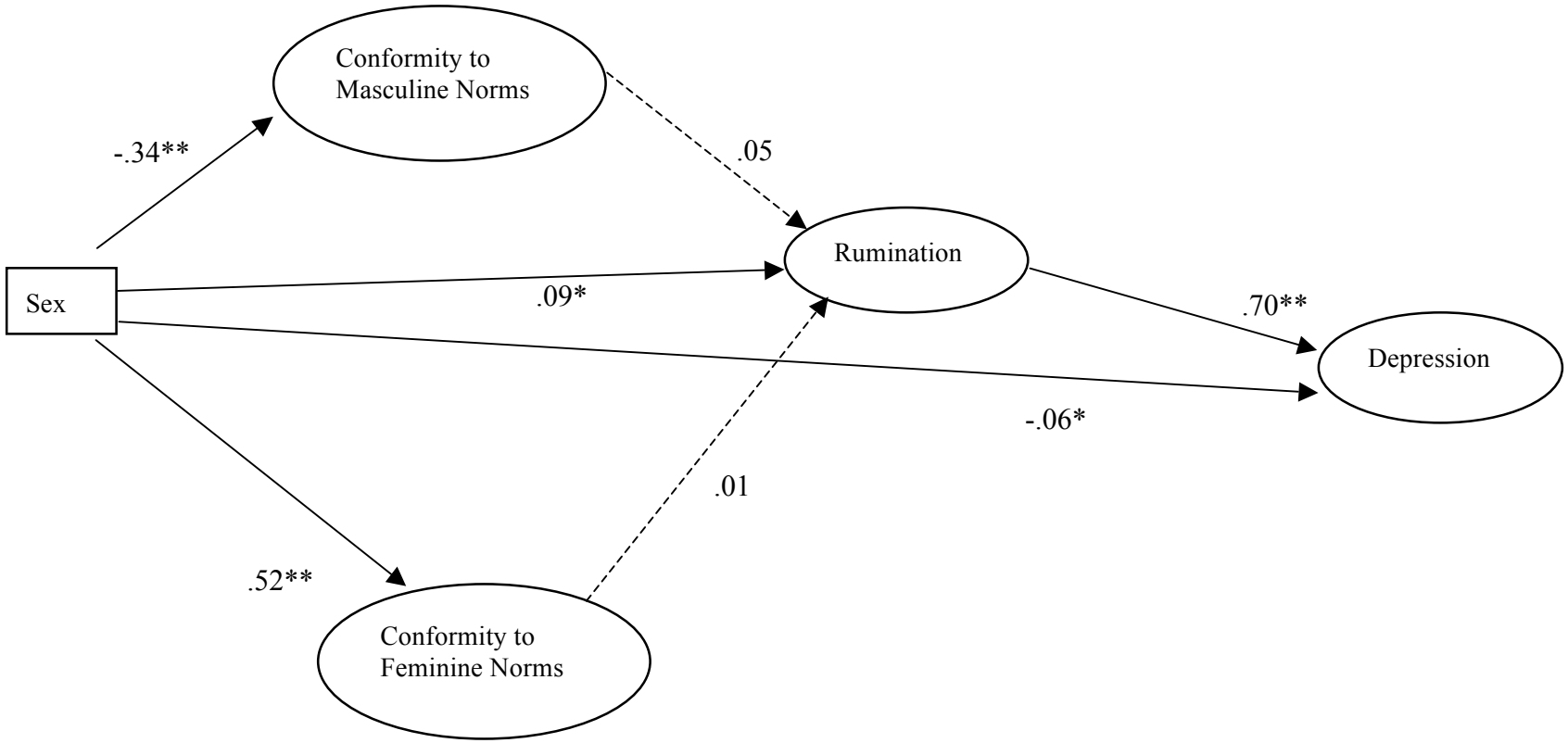

Figure 2. Structural model: RSQ Rumination. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

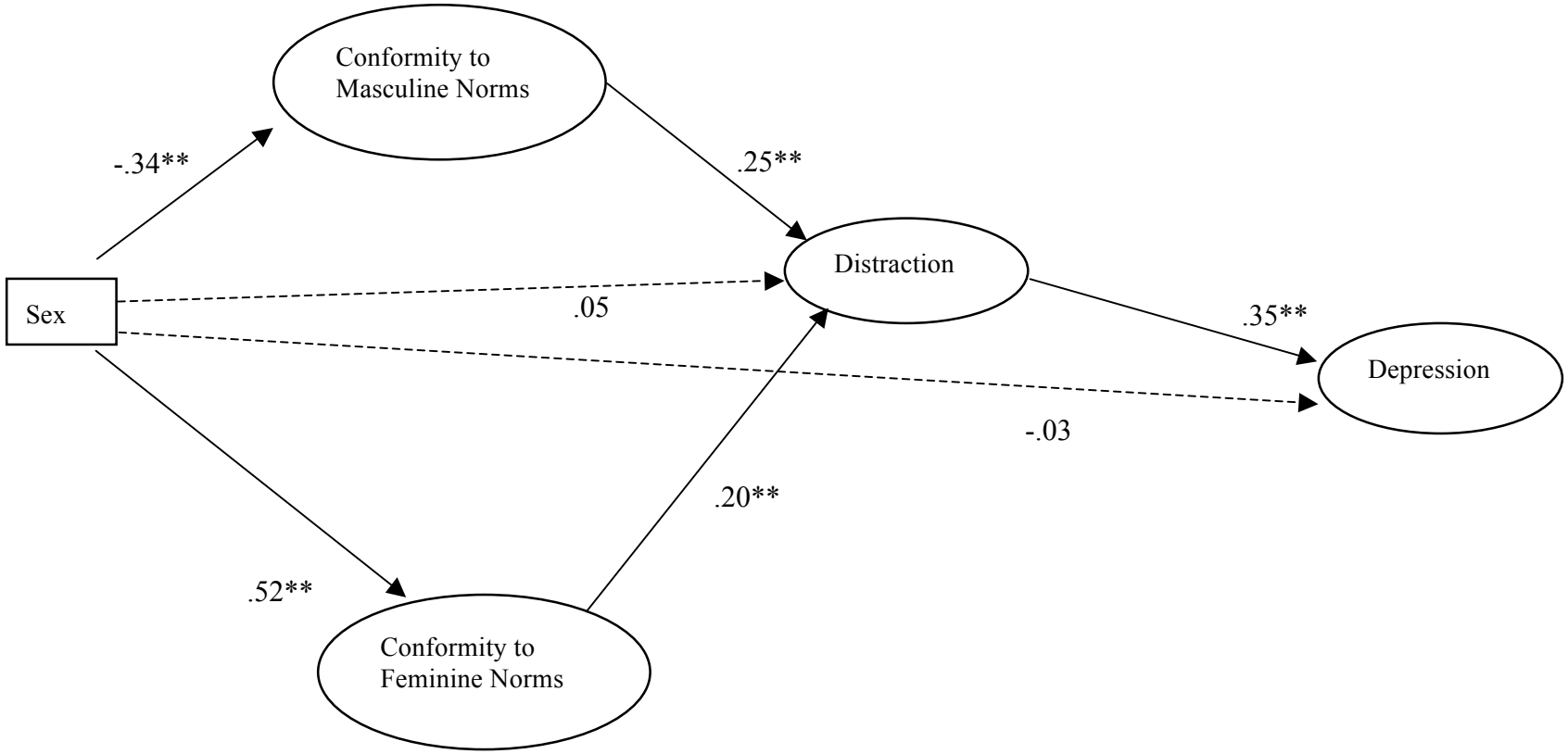

Figure 3. Structural model: CAQ Distraction. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

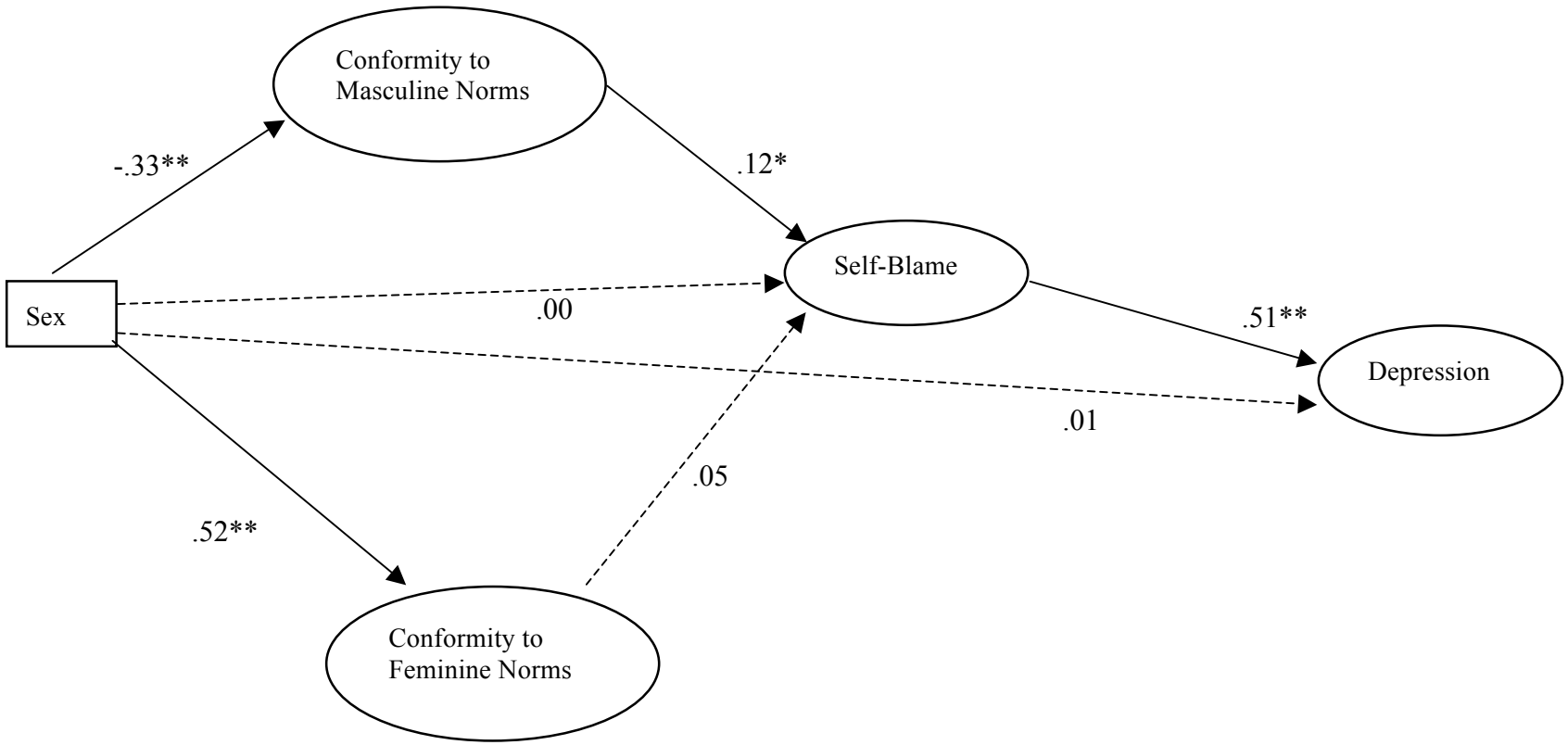

Figure 4. Structural model: Self-Blame. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

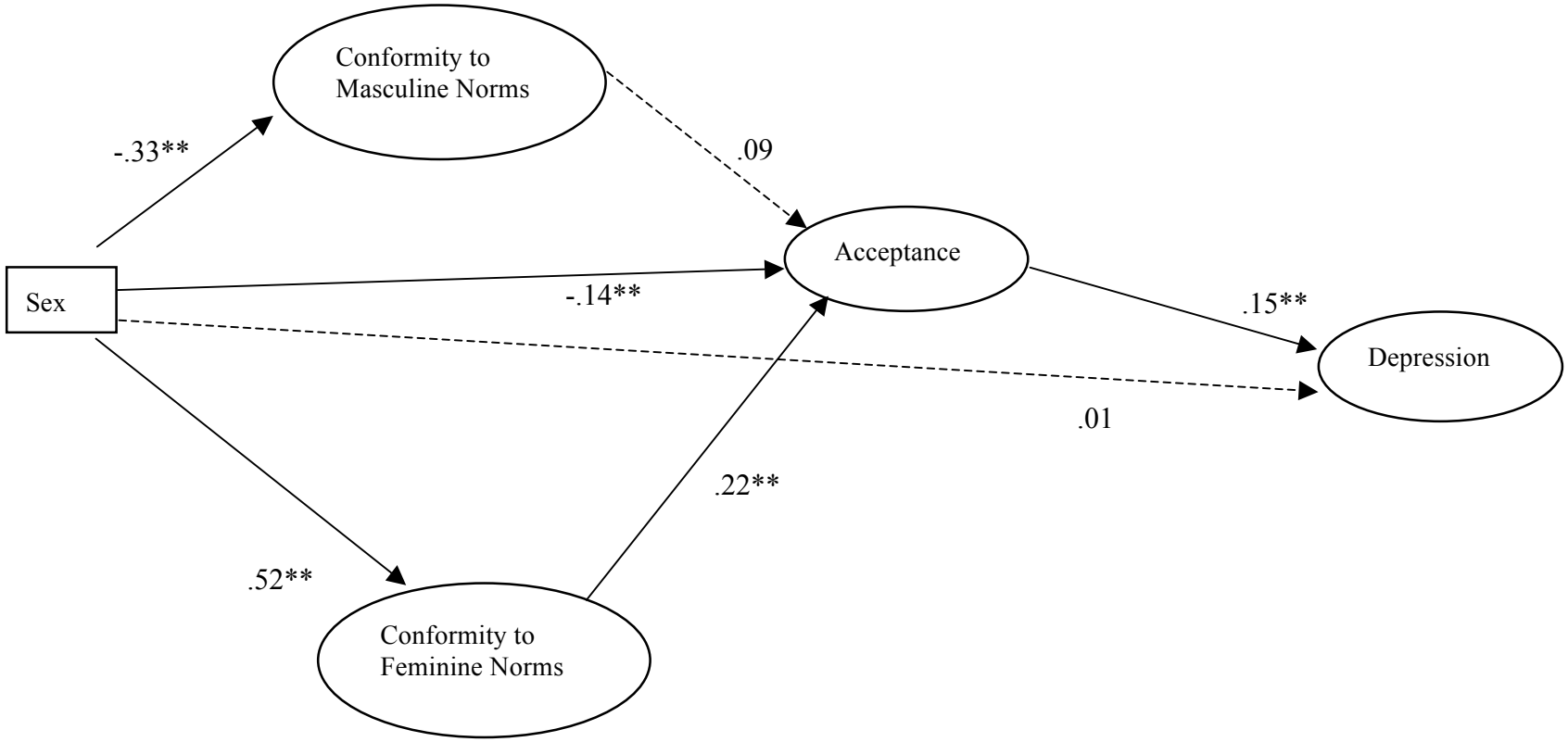

Figure 5. Structural model: Acceptance. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

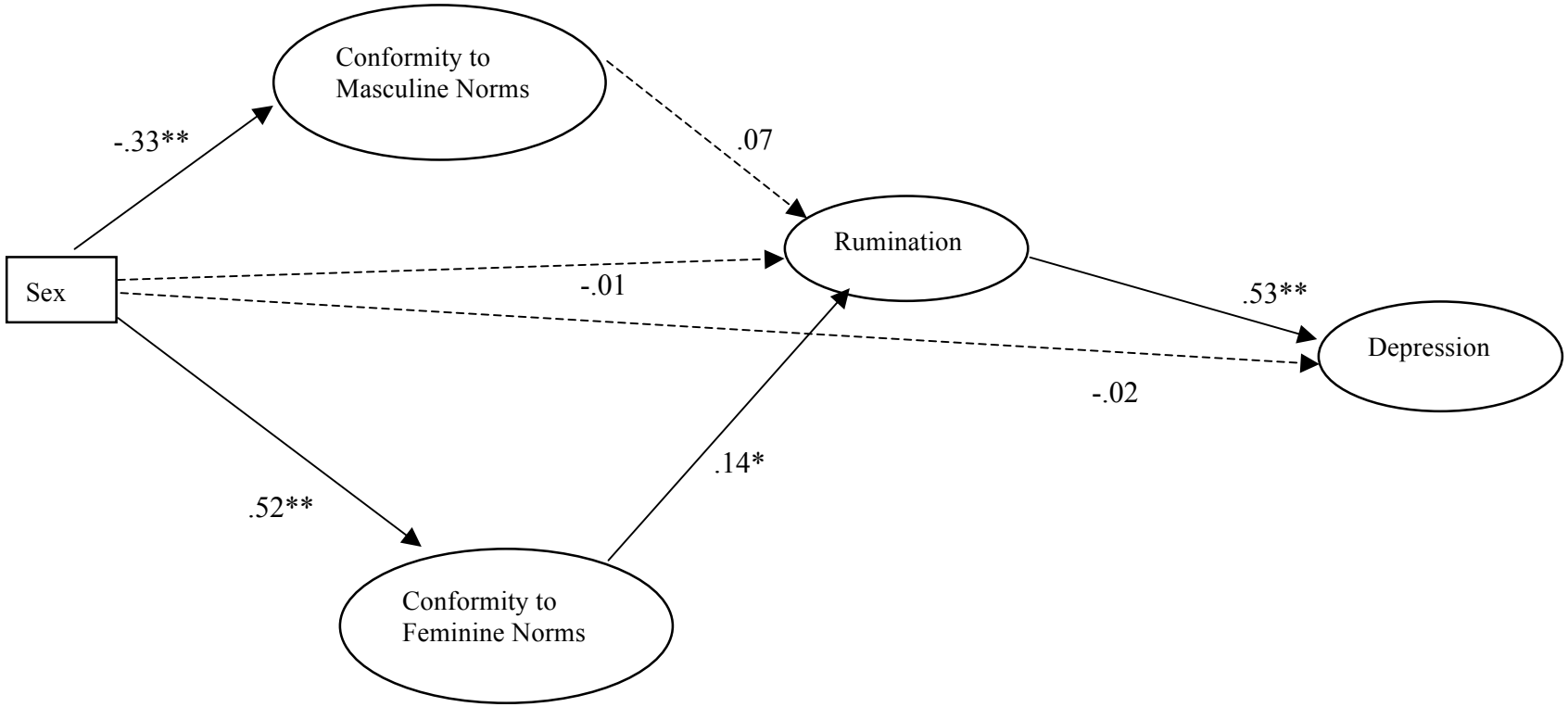

Figure 6. Structural model: Rumination. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

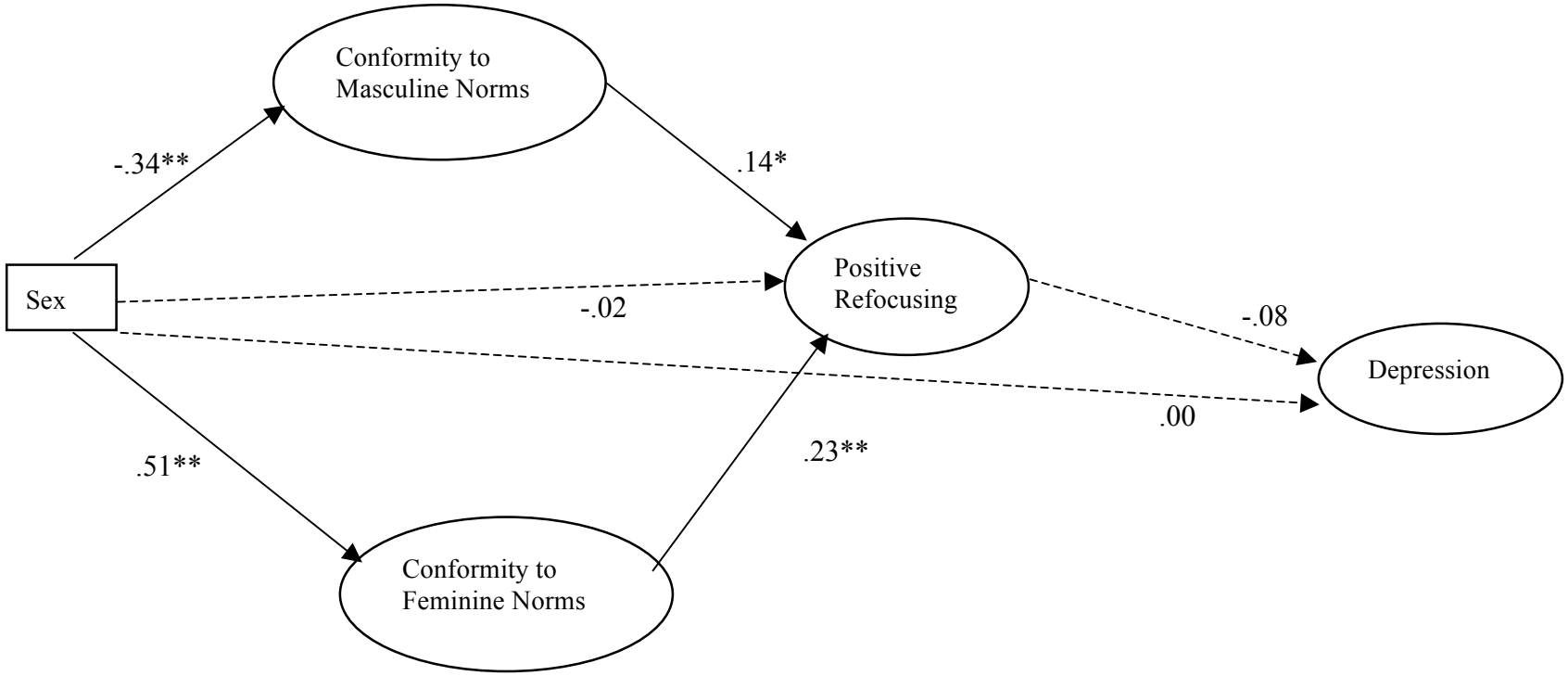

Figure 7. Structural model: Positive Refocusing. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

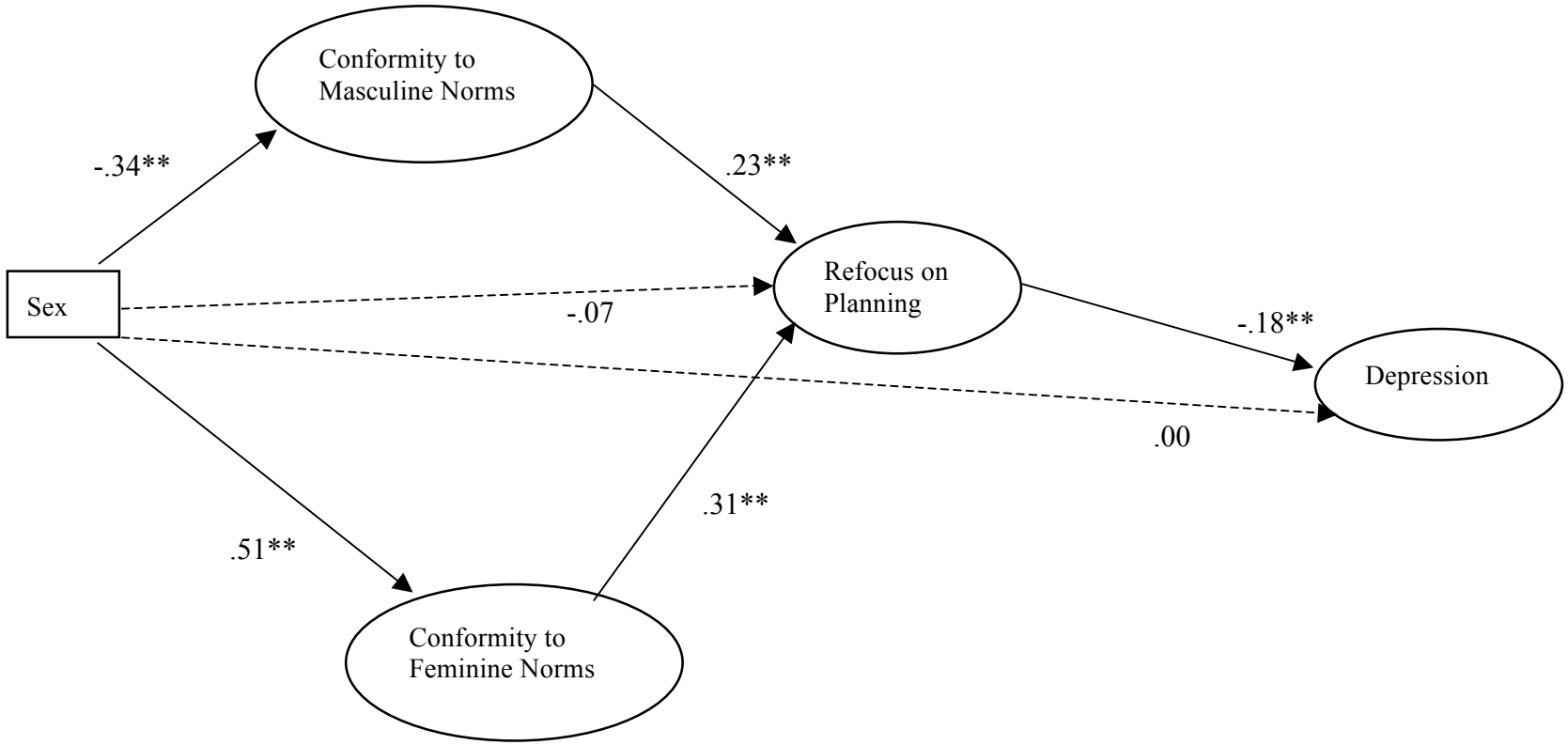

Figure 8. Structural model: Refocus on Planning. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

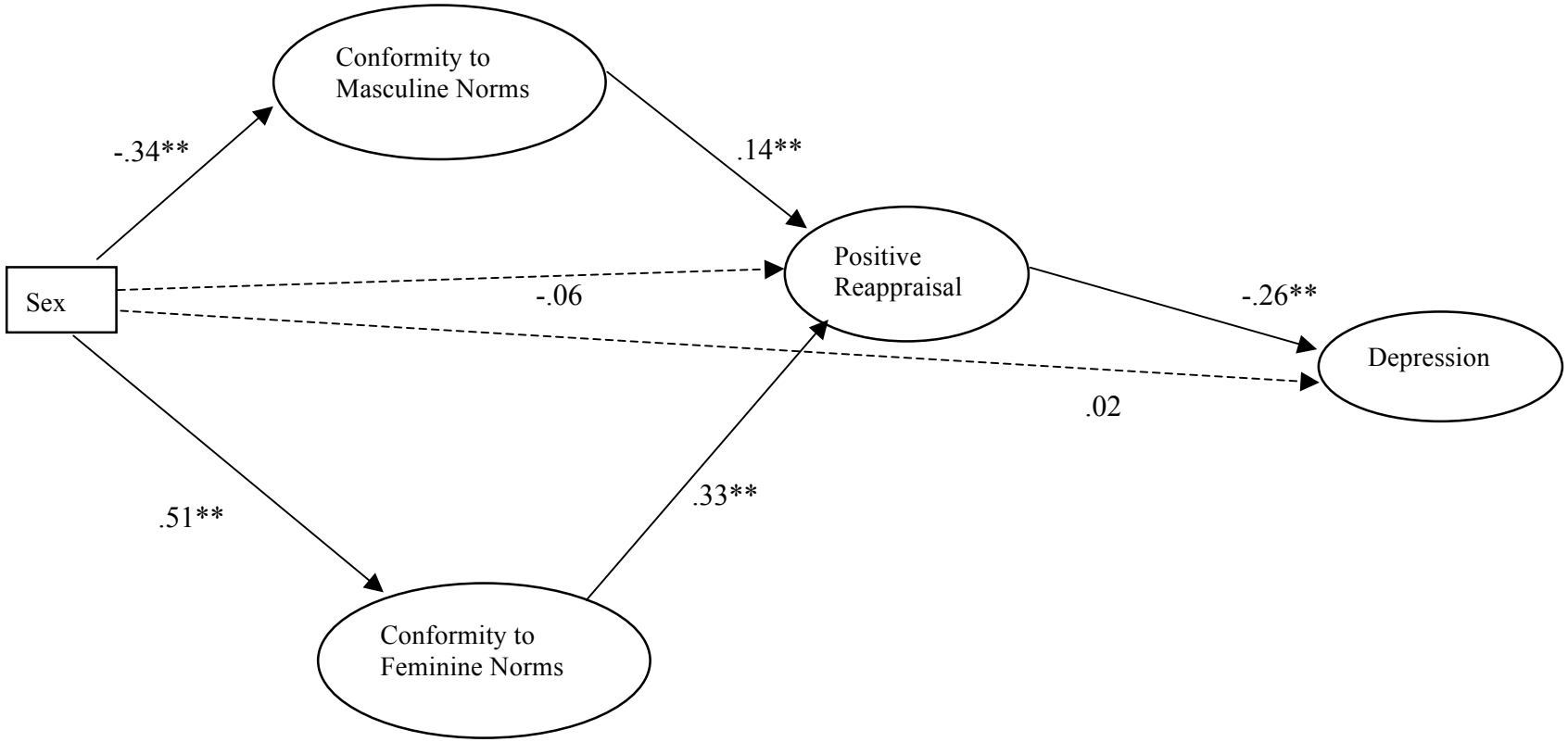

Figure 9. Structural model: Positive Reappraisal. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

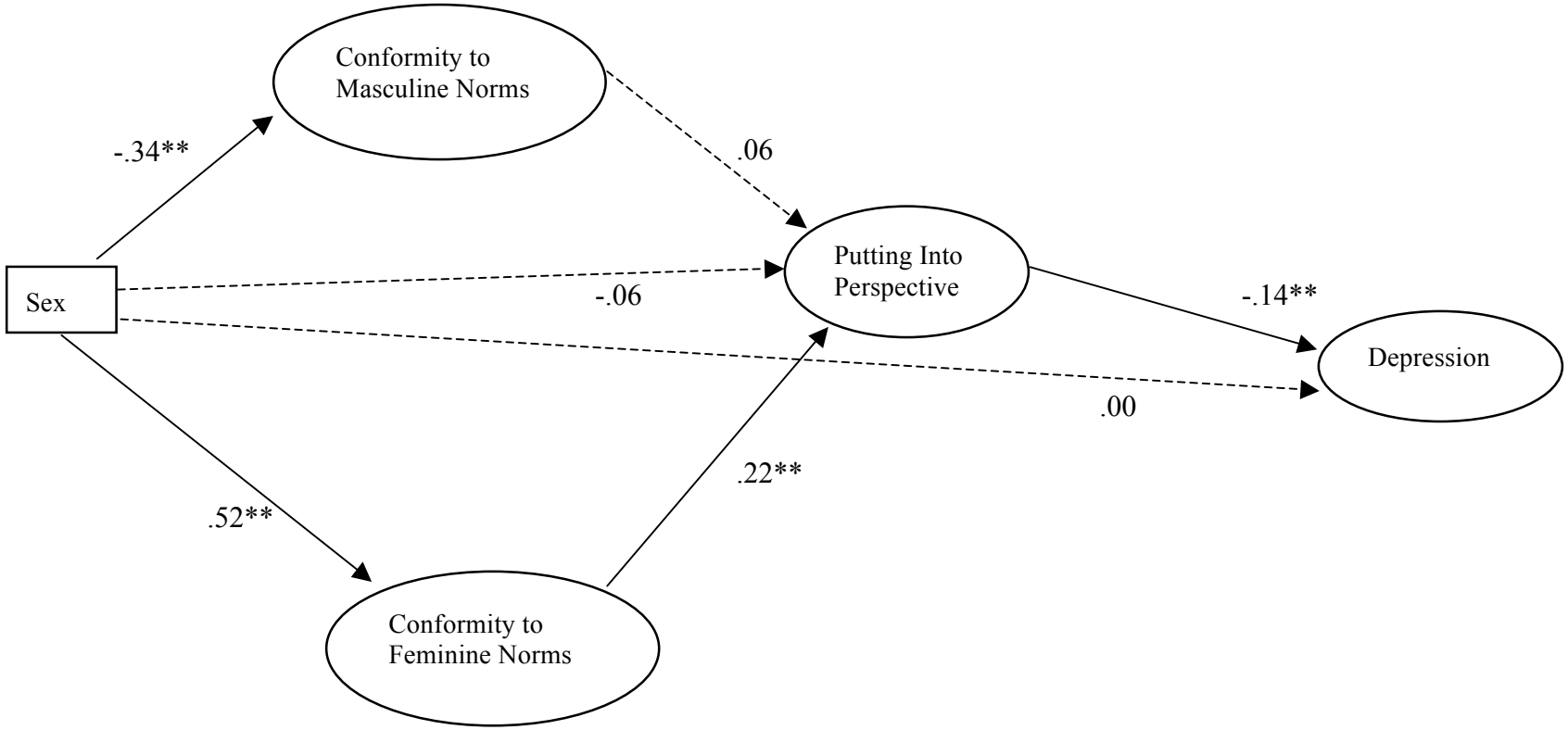

Figure 10. Structural model: Putting Into Perspective. Values represent standardized direct effects. .
* = $p < .05$. ** = $p < .01$.

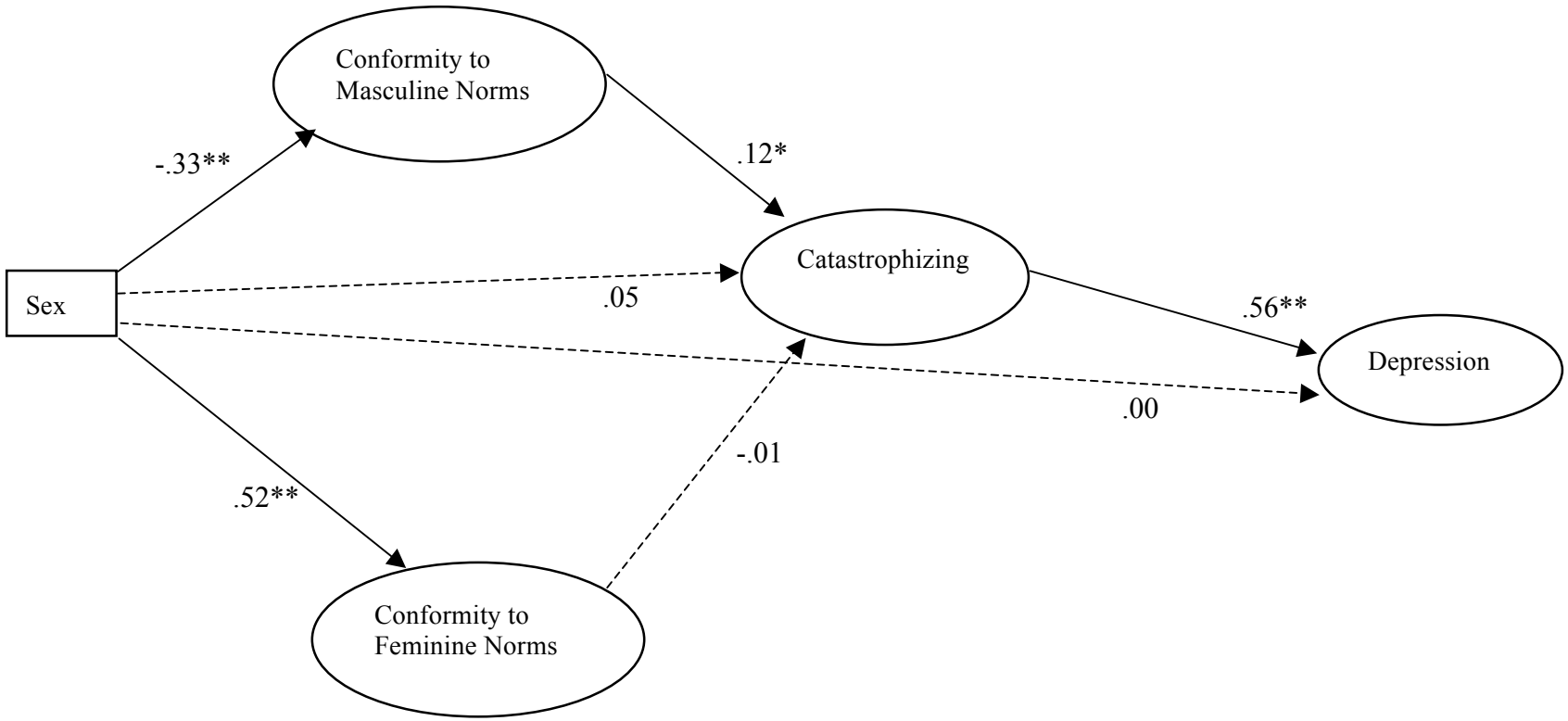

Figure 11. Structural model: Catastrophizing. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

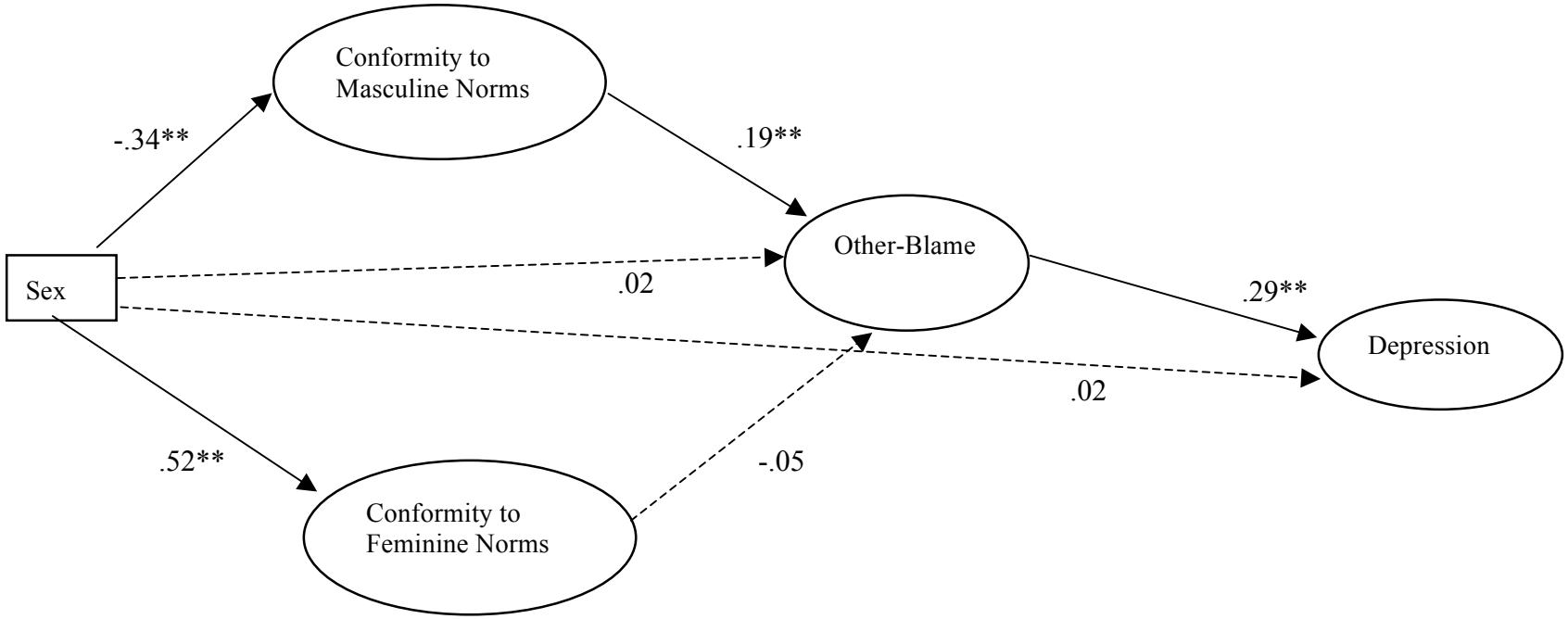

Figure 12. Structural model: Other-Blame. Values represent standardized direct effects.
* = $p < .05$. ** = $p < .01$.

Appendix A: Request for Participation Posted to Mechanical Turk

Survey about Managing Emotions

Adult participants wanted for doctoral research on the ways in which we respond to our own emotions and the impact of gender on these responses. This survey will take approximately 45-50 minutes to complete. You will receive $1.00 for completing this survey.

If you are interested and over age 18, please click the link below.

Appendix B: Request for Participation Posted to Craigslist

Survey about Managing Emotions

Adult participants wanted for doctoral research on the ways in which we respond to our own emotions and the impact of gender on these responses. This survey will take approximately 45-50 minutes to complete. Participants will be entered into a raffle for 1 of 3 $50.00 Visa gift cards.

If you are interested and over age 18, please click the link below.

Appendix C: Informed Consent

BOSTON COLLEGE

Informed Consent

You are invited to participate in a research study conducted by Faedra Backus, a doctoral student researcher at Boston College under the supervision of Dr. James Mahalik, a professor at Boston College. The focus of this study is the ways in which individuals experience and manage their emotions. All adults over the age of 18 are eligible to participate in this study. If you are not over the age of 18, please do not complete this survey.

Purpose: It has been argued that the way in which people respond to their emotions may be directly linked to their experiences of some symptoms of depression and anxiety. Researchers have also noted that women and men may experience and manage their emotions differently at times, based on a number of individual factors. The purpose of this study is to better understand the ways in which women and men may or may not respond to emotion differently and how this may impact their mental health and wellbeing.

Procedures: Taking part in this study means answering the survey questions. In the first part of the survey, you will be asked some background information. In the second part, you will be asked about how you tend to manage your own emotions, how much you agree with traditional gender roles, and the extent to which you have experienced some symptoms of depression and anxiety. The survey should take about 45-50 minutes to complete.

Risks: Participating in this study should involve no more risk than is encountered in everyday life. However, if you experience any discomfort while completing the survey, you are free to discontinue participation at any time without penalty. **If you start to feel anxious or upset, you may call the Crisis Help Line at 1-800-233-4357 free of charge** While it is not possible to identify all potential risks, all reasonable efforts have been made to minimize risk (e.g., by protecting your anonymity). This study may include risks that are unknown at this time.

Benefits: This study is designed for the researcher to learn more about the relationship between gender and emotion regulation and how this may impact aspects of mental health.

Compensation: [for participants recruited through Mechanical Turk] You will receive payment of $1.00 upon completion of this study.
[for participants recruited through Craigslist] You will be entered into a raffle for one of three $50.00 Visa gift cards **upon completion of the study**.

Anonymity: In this study, your answers will be anonymous. You will never be contacted by the investigator, or anyone else, because you are not providing any identifying information, such as your name, address, or email. When your responses have been received on the secure server at Psychdata, the data will remain behind a network firewall that provides security against any unauthorized persons from gaining access to the information you provided. This research may be published or reported in scientific journals or books, but any such publications will be reported in group format (e.g., average scores). Thus, no individual identity will be determinable through any demographic variables such as age or race. We will make every effort to keep your research records confidential, but it cannot be assured. Records that identify you and the consent form signed by you may be looked at by the Boston College IRB or Federal Agencies overseeing human subject research.

Withdrawal from the Study: Your participation is entirely voluntary and you are free to discontinue participation at any time without penalty.

Questions or Problems: If you have questions about the study, you can contact Faedra Backus at backusf@bc.edu or Dr. James Mahalik at mahalik@bc.edu to answer any questions about the survey. If at any time you have questions or concerns about your rights as a participant, please contact the Boston College Office for Research Protections at (617) 552-4778 or email irb@bc.edu.

Certification of Consent: If you believe you understand the issues addressed above, particularly the risks, issues of confidentiality, and what you are being asked to do, please click on the "Continue" button below to indicate that you consent to participate in this study. If you do not understand any of these requirements or need to ask questions about the study prior to beginning, please contact Dr. Mahalik at (617) 552-4077 or mahalik@bc.edu. Please feel free to print a copy of this page to keep as a record.

Appendix D: Demographics

1. What is your age?

2. What is your gender?
   - Male
   - Female
   - Transgender
   - Other

3. Which best describes your race/ethnicity?
   - American Indian or Alaska Native
   - Asian or Asian American
   - Black or African American
   - Latino or Hispanic
   - Native Hawaiian or Other Pacific Islander
   - White/Caucasian
   - Bi/Multi-Racial
   - Other (please specify)

4. Which of the following sexual orientations best describes you?
   - Heterosexual
   - Gay or Lesbian
   - Questioning/Unsure
   - Other

5. What is your relationship status?
   - Single
   - In a relationship
   - Married, Domestic Partnership, or Civil Union

6. Educational status completed:
   - 7^{th} grade or less
   - Junior high school (8^{th} or 9^{th} grade)
   - Partial high school (10^{th} or 11^{th} grade)
   - High school diploma or GED
   - Associate's degree
   - Bachelor's degree
   - Master's degree (e.g., MA, MS, MEd, MBA)
   - Doctoral degree (e.g., PhD, MD)

Appendix E: Conformity to Masculine Norms Inventory

CMNI-22

The following items contain a series of statements about how people might think, feel or behave. The statements are designed to measure attitudes, beliefs, and behaviors associated with both traditional and non-traditional masculine gender roles.

Thinking about your own actions, feelings and beliefs, please indicate how much **you personally agree or disagree with each statement** by selecting SD for "Strongly Disagree", D for "Disagree", A for "Agree", or SA for "Strongly agree" to the right of the statement. There are no correct or wrong answers to the items. You should give the responses that most accurately describe your personal actions, feelings and beliefs. It is best if you respond with your first impression when answering.

1.	My work is the most important part of my life	SD D A SA
2.	I make sure people do as I say	SD D A SA
3.	In general, I do not like risky situations	SD D A SA
4.	It would be awful if someone thought I was gay	SD D A SA
5.	I love it when men are in charge of women	SD D A SA
6.	I like to talk about my feelings	SD D A SA
7.	I would feel good if I had many sexual partners	SD D A SA
8.	It is important to me that people think I am heterosexual	SD D A SA
9.	I believe that violence is never justified	SD D A SA
10.	I tend to share my feelings	SD D A SA
11.	I should be in charge	SD D A SA
12.	I would hate to be important	SD D A SA
13.	Sometimes violent action is necessary	SD D A SA
14.	I don't like giving all my attention to work	SD D A SA
15.	More often than not, losing does not bother me	SD D A SA
16.	If I could, I would frequently change sexual partners	SD D A SA
17.	I never do things to be an important person	SD D A SA
18.	I never ask for help	SD D A SA
19.	I enjoy taking risks	SD D A SA
20.	Men and women should respect each other as equals	SD D A SA
21.	Winning isn't everything, it's the only thing	SD D A SA

22. It bothers me when I have to ask for help SD D A SA

Appendix F: Conformity to Feminine Norms Inventory

CFNI-16

The following items contain a series of statements about how people might think, feel or behave. The statements are designed to measure attitudes, beliefs, and behaviors associated with both traditional and non-traditional feminine gender roles.

Thinking about your own actions, feelings and beliefs, please indicate how much **you personally agree or disagree with each statement** by selecting SD for "Strongly Disagree", D for "Disagree", A for "Agree", or SA for "Strongly agree" to the right of the statement. There are no correct or wrong answers to the items. You should give the responses that most accurately describe your personal actions, feelings and beliefs. It is best if you respond with your first impression when answering.

1.	Taking care of children is extremely fulfilling	SD D A SA
2.	I always try to make people feel special	SD D A SA
3.	Being thin is important	SD D A SA
4.	I would feel comfortable having casual sex	SD D A SA
5.	I'd feel superficial if I wore make-up	SD D A SA
6.	Taking care of kids is just not for me	SD D A SA
7.	Being nice to others is extremely important	SD D A SA
8.	Being mean gets you ahead in life	SD D A SA
9.	Being in a romantic relationship is important	SD D A SA
10.	I try to be sweet and nice	SD D A SA
11.	When I have a romantic relationship, I enjoy focusing my energies on it	SD D A SA
12.	I would be perfectly happy with myself even if I gained weight	SD D A SA
13.	It is impossible to always be nice to others	SD D A SA
14.	It would be enjoyable to date more than one person at a time	SD D A SA
15.	I enjoy being in the spotlight	SD D A SA
16.	I regularly wear makeup	SD D A SA

Appendix G: Cognitive Emotion Regulation Questionnaire

CERQ

How do you cope with events?

Everyone gets confronted with negative or unpleasant events now and then and everyone responds to them in his or her own way. By the following questions you are asked to indicate what you generally think, when you experience negative or unpleasant events.

	(almost) never	**some-times**	**regu-larly**	**often**	**(almost) always**
1. 1 feel that I am the one to blame for it	1	2	3	4	5
2. I think that I have to accept that this has happened	1	2	3	4	5
3. I often think about how I feel about what I have experienced	1	2	3	4	5
4. I think of nicer things than what I have experienced	1	2	3	4	5
5. I think of what I can do best	1	2	3	4	5
6. I think I can learn something from the situation	1	2	3	4	5
7. I think that it all could have been much worse	1	2	3	4	5
8. I often think that what I have experienced is much worse than what others have experienced	1	2	3	4	5
9. I feel that others are to blame for it	1	2	3	4	5
10. I feel that I am the one who is responsible for what has happened	1	2	3	4	5
11. I think that I have to accept the situation	1	2	3	4	5
12. I am preoccupied with what I think and feel about what I have experienced	1	2	3	4	5
13. I think of pleasant things that have nothing to do with it	1	2	3	4	5
14. I think about how I can best cope with the situation	1	2	3	4	5
15. I think that I can become a stronger person as a result of what has happened	1	2	3	4	5
16. I think that other people go through much worse experiences	1	2	3	4	5
17. I keep thinking about how terrible it is what I have experienced	1	2	3	4	5

18. I feel that others are responsible for what has happened	1	2	3	4	5
19. I think about the mistakes I have made in this matter	1	2	3	4	5
20. I think that I cannot change anything about it	1	2	3	4	5
21. I want to understand why I feel the way I do about what I have experienced	1	2	3	4	5
22. I think of something nice instead of what has happened	1	2	3	4	5
23. I think about how to change the situation	1	2	3	4	5
24. I think that the situation also has its positive sides	1	2	3	4	5
25. I think that it hasn't been too bad compared to other things	1	2	3	4	5
26. I often think that what I have experienced is the worst that can happen to a person	1	2	3	4	5
27. I think about the mistakes others have made in this matter	1	2	3	4	5
28. I think that basically the cause must lie within myself	1	2	3	4	5
29. I think that I must learn to live with it	1	2	3	4	5
30. I dwell upon the feelings the situation has evoked in me	1	2	3	4	5
31. I think about pleasant experiences	1	2	3	4	5
32. I think about a plan of what I can do best	1	2	3	4	5
33. I look for the positive sides to the matter	1	2	3	4	5
34. I tell myself that there are worse things in life	1	2	3	4	5
35. I continually think how horrible the situation has been	1	2	3	4	5
36. I feel that basically the cause lies with others	1	2	3	4	5

Appendix H: Response Styles Questionnaire: Ruminative Responses Scale

Responses to Situations

People think and do many different things when they feel sad, blue, or depressed. Please read each of the items below and indicate whether you never, sometimes, often, or always think or do each one when you feel sad, down, or depressed. Please indicate what you generally do, not what you think you should do.

	Never	**Sometimes**	**Often**	**Always**
1. Think about how alone you feel	1	2	3	4
2. Think "I won't be able to do my job/work because I feel so bad"	1	2	3	4
3. Think about your feelings of fatigue and achiness	1	2	3	4
4. Think about how hard it is to concentrate	1	2	3	4
5. Think about how passive and unmotivated you feel	1	2	3	4
6. Analyze recent events to try to understand why you are depressed	1	2	3	4
7. Think about how you don't seem to feel anything anymore	1	2	3	4
8. Think "Why can't I get going?"	1	2	3	4
9. Think "Why do I always react this way?"	1	2	3	4
10. Go away by yourself and think about why you feel this way	1	2	3	4
11. Write down what you are thinking about and analyze it	1	2	3	4
12. Think about a recent situation, wishing it would have gone better	1	2	3	4
13. Think "Why do I have problems other people don't have?"	1	2	3	4
14. Think about how sad you feel	1	2	3	4
15. Think about all your shortcomings, failings, faults, and mistakes	1	2	3	4
16. Think about how you don't feel up to doing anything	1	2	3	4
17. Analyze your personality to try to understand why you are depressed	1	2	3	4
18. Go someplace alone to think about your feelings	1	2	3	4

19. Think about how angry you are with yourself	1	2	3	4
20. Listen to sad music	1	2	3	4
21. Isolate yourself and think about the reasons why you feel sad	1	2	3	4
22. Try to understand yourself by focusing on your depressed feelings	1	2	3	4

Appendix I: Cognitive Avoidance Questionnaire: Distraction Scale

CAQ

People react differently to certain types of thoughts. Using the following scale, please indicate to what extent each of the following statements is typical of the way you respond to certain thoughts.

	Not At All Typical	**A Little Typical**	**Somewhat Typical**	**Very Typical**	**Completely Typical**
1. I distract myself to avoid thinking about certain disturbing subjects	1	2	3	4	5
2. I often do things to distract myself from my thoughts	1	2	3	4	5
3. Sometimes I throw myself into an activity so as to not think about certain things	1	2	3	4	5
4. To avoid thinking about subjects that upset me, I force myself to think about something else	1	2	3	4	5
5. Sometimes I keep myself occupied just to prevent thoughts from popping up in my mind	1	2	3	4	5

Appendix J: Depression, Anxiety, and Stress Scale: Depression and Anxiety Scales

Please read each statement and select the response that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I was aware of dryness of my mouth	0	1 2 3
2	I couldn't seem to experience any positive feeling at all	0	1 2 3
3	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1 2 3
4	I found it difficult to work up the initiative to do things	0	1 2 3
5	I experienced trembling (eg, in the hands)	0	1 2 3
6	I was worried about situations in which I might panic and make a fool of myself	0	1 2 3
7	I felt that I had nothing to look forward to	0	1 2 3
8	I felt down-hearted and blue	0	1 2 3
9	I felt I was close to panic	0	1 2 3
10	I was unable to become enthusiastic about anything	0	1 2 3
11	I felt I wasn't worth much as a person	0	1 2 3
12	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1 2 3

13	I felt scared without any good reason	0 2	1 3
14	I felt that life was meaningless	0 2	1 3